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Shifting Range-Feeder Patterns in the Ohio Valley Before 1860 *Paul C. Henlein* 1

Mechanizing the Cotton Harvest *James H. Street* 12

The Cincinnatus Image in Presidential Politics *W. Burlie Brown* 23

T. P. Gore and Agricultural Legislation *Monroe Billington* 29

An Historical Consideration of the Terms "Corn" and "Corn Belt" in the United States *William Warnts* 40

A Note on Jethro Tull: Innovator or Crank? *E. R. Wicker* 46

Notes and Comments 48

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Shifting Range-Feeder Patterns in the Ohio Valley Before 1860

PAUL C. HENLEIN

Although many Corn Belt farmers of today raise their own feeder cattle, a much more common practice is to purchase calves and yearlings for feeding from the ranges of the Great Plains. In this range-feeder relationship, the natural resources of land and climate have been put to suitable uses, and agriculture has been specialized according to function. Both these developments—utilization of resources and specialization of agriculture—had already occurred, however, by about 1830 *within* the Ohio Valley itself, where a group of business-like cattlemen were making that region the beef-empire of the United States. In learning to utilize the resources of land and water, the Ohio Valley cattlemen sorted out the lands of the valley; and from this sorting-out of the lands, and from the need to have marketable produce, emerged changing range-feeder patterns. Of this significant aspect of the Ohio Valley cattle industry I shall attempt a preliminary survey.

As early as 1784 cattle were being driven from the South Branch of the Potomac to the Glades of what is now Kentucky for summer pasture.[1] Cattle trade between Kentucky and the South Branch is indicated as late as 1817 by Lewis Sanders' assertion that he included Longhorns in his 1817 importation partly to please "some old South Branch feeders."[2] Probably, too, the South Branch feeders had been getting stock cattle from the Scioto Valley of Ohio for some years before 1811.[3] Central-Kentucky cattle were being driven by herdsmen about 180 miles north to the west-central Ohio upland for pasturing.[4] By 1800 this upland, particularly the Darby Plains, was being used as pasture, too, by Scioto Valley cattlemen.[5]

The four major feeding-areas for beef cattle in the Ohio Valley before 1860 were the Kentucky Bluegrass, the Scioto Valley, the Miami Valley, and the Indianapolis-middle Wabash belt of corn farms. In 1800 only one of these cattle-fatting regions was in existence, the Kentucky Bluegrass. By 1810, the Scioto Valley was starting feeding. In 1820, the Miami Valley and the Indianapolis-middle Wabash region were in process of becoming feeding regions. All four regions except the Miami Valley were doing intensive, large-scale feeding by about 1830. At that date, east of the mountains, the corn-fatting of cattle was going on in southeastern Pennsylvania and in parts of Virginia and North Carolina; to the south, there was some feeding in Tennessee; west of the Mississippi, it was getting underway in Missouri's Salt River country and 'Tit Saw-Boone's Lick country. But the Ohio Valley was identifiable about 1830 as the beef empire of the United States. By that time all of the Ohio Valley had been occupied by settlers except parts of the Viriginia Military District; the wetlands north of Fort Greenville (O.), Richmond (Ind.), Indianapolis, and Lafayette; and the great Illinois prairie. In 1830 there was dawning an era during which Ohio Valley cattlemen imported breeding cattle from Britain; upbreeding and feeding went hand in hand, each promoting the other. A fifth feeding area, the Sangamon Valley, which began feeding in the 1830's, perhaps belongs to the geographical region of the Ohio Valley but of course is not tributary to that river.

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[1] James Westfall Thompson, *A History of Livestock Raising in the United States*, 1607–1860 U. S. Dept. of Agriculture, Agricultural Histo series, No. 5 (November, 1942), 92.

[2] Lewis Sanders, letter, Grass Hills, Kentucky, May 2, 1853, to Edwin J. Bedford, Bourbon County, Kentucky, ms. in the University of Kentucky library.

[3] Robert Leslie Jones, "The Beef Cattle Industry in Ohio Prior to the Civil War," *Ohio Historical Quarterly*, 64: 174 (April, July, 1955).

[4] Jervis Cutler, *A Topographical Description of the State of Ohio, Indiana Territory and Louisiana* (Boston, 1812), 38–39.

[5] Jones, "The Beef Cattle Industry," 176.

The first feeding-region to develop in the Ohio country was the Kentucky Bluegrass, and that in the 1790's. Here the hunters, surveyors, and "adventurers" of Boonesboro — Tom Shelby I, Nathaniel Hart, Green Clay, and Thomas Goff — received large land grants that became cattle estates. The cattle ate the "switch cane" which grew wild among the giant trees.[6] Bluegrass—native to North America but apparently not common here—may have been imported by chance to Virginia as some extra feed for horses; thence, says one local Kentucky story, it migrated across the mountains in 1792 when Thomas Goff saw his horse eating a strange grass in the Powell Valley of Virginia and brought some seed back with him to Kentucky.[7] Quickly, bluegrass pasture became one leg, and corn the other leg, upon which the cattle industry of central Kentucky stood. The corn was shocked in the field as per the Virginia custom, and "riddling"—gradual, selective cutting—was practiced.[8] The cattlemen wintered their two-year-olds out of doors on shocked corn; put them on bluegrass pasture next spring and summer; and then stuffed them with corn next winter until February, when the drive to market began.[9] Improved breeds could be ready for market at 3½ years of age, others at 4½ to 5.[10] Thus the grazier and feeder functions were combined in the Kentucky Bluegrass. Graziers could rent an occasional large absentee holding that might be as large as 1400 acres.[11] Stockers were available within the Bluegrass Basin itself —in the early years in Fayette and Bourbon counties, later more particularly in the peripheral counties of Madison and what is now Boyle—or stockers might be brought in from the outside.[12] The function of cattle dealer appeared early in the person of Thomas Goff, and the function of agent-drover in the persons of Lewis Heath of Bourbon County and, later, B. F. Cloud of Clark.[13]

Corn production remained heavy in the core Bluegrass counties (including Harrison) during the half century before 1860.[14] The Inner Bluegrass counties of Bourbon, Clark, Madison, Fayette, and Shelby each had 10,000 to 12,000 cattle in the 1840's and '50's.[15] Some of these were owned by small farmers who had no slaves; others belonged to large landed proprietors. Brutus Clay had been in the cattle business at his "Auvergue" estate, several miles south of Paris, since 1830.[16] In Clark County the neighborhood around Hancock's Branch, a few miles northwest of Winchester, was devoted almost exclusively to the raising of Shorthorns;[17] here the largest operation was probably that carried on by Strauder Goff on the "Holmhurst" estate which his father had left him. During some seasons Strauder put droves on the road for market every ten days.[18] In Fayette County large feeding operations were carried on by Jacob Hughes, Tom

[6] Ben Douglas Goff, Sr., interview with the author, Winchester, Kentucky, November 8, 1955.

[7] Edward N. Wentworth, letter to the author, Chesterton, Indiana, June 19, 1956; Goff, interview.

[8] *Franklin Farmer* (Frankfort, Kentucky), September 23, 1837.

[9] Goff, interview.

[10] Adam Beatty, "On Grazing and Feeding Cattle in Kentucky," *Southern Agriculture* (Maysville, Kentucky, 1830), 264-272, cited in Elizabeth Ritter Clotfelter, "The Agricultural History of Bourbon County, Kentucky, Prior to 1900," unpublished M.A. thesis, University of Kentucky, 1953, 23.

[11] *Western Citizen* (Paris, Kentucky), February 27, 1830; September 17, 1831.

[12] *Ibid.*, February 19, 1831; September 17, 1831; February 4, 1842; Felix Renick, Account Book, ms. in possession of Renick Cunningham, Chillicothe, Ohio; H. Miller, letter, Richmond, Kentucky, January 20, 1844, to Brutus J. Clay, Paris, Kentucky, ms. in possession of Cassius M. Clay, Paris; John Green, letter, Lincoln County, Kentucky, March 4, 1837, to B. Clay.

[13] Goff, interview; Felix Renick, Account Book; James Gay, letter, Charleston, South Carolina, April 28, 1848, to Strauder Goff, Winchester, Kentucky, ms. in possession of Ben Douglas, Sr., Winchester, Kentucky.

[14] U. S. Census Office, *Sixth Census*, 1840, 274–278; *Seventh Census*, 1850, 626–627; *Eighth Census*, 1860, 58–63.

[15] *Ibid.*, also 1850, 624–626.

[16] Brutus Clay, Stock Book, 1830, ms. in possession of Cassius M. Clay, Paris, Kentucky.

[17] Lucien Beckner, "Kentucky's Glamorous Shorthorn Age," *The Filson Club History Quarterly*, 26: 37–38 (January, 1952).

[18] Gay, letter.

Shelby (at Athens), Nat Hart (at Spring Hill), John Kerr, and the partnership of Edward S. Washington, A. D. Offut, and Glass Marshall.[19] Hughes, whose manor house "Leafland" may be seen on the Winchester-Lexington Pike, did *not* as a rule raise his own stockers; "I buy," he said, "graze and feed about 300 cattle annually; raise and sell about 200 hogs."[20] On his farm of 1800-1900 acres he had 200 acres of corn, 20 acres of meadow, 100 acres of wheat and rye, and the balance in pasture.[21] Of the Shelby family estate, an English traveller said, "His pastures are on a fine virgin soil, well shaded by virgin forest timber, with here and there an open glade (something like an English park)."[22]

The second great feeding region of the Ohio country was the middle Scioto Valley, lying in Ross, Pickaway, and Franklin counties. Any beeves fatted before 1803 were kept for local consumption, and the only cattle driven out to the South Branch were stores.[23] By 1803 the valley, which three years before had had to import grain from Pittsburgh, now had a corn surplus.[24] Next year (1804), George Renick began fatting up 68 head of cattle, which he drove to Baltimore in 1805. In 1810, it is said, 700 cattle were fatted;[25] in that year, Felix Renick began bringing in stockers from the outside.[26] By 1815, it is reported, some 1500 cattle were being fatted;[27] in that year, Felix made a drive to Philadelphia,[28] and thereafter a drive to the East from Ross County occurred, we know, as often as every year or two, perhaps oftener. By 1819, Chillicothe had a slaughterhouse —Huffnagle and McCollister—which paid Felix Renick $500 for a 2511 lb. bullock.[29] At the same time, Pickaway County was driving out droves of fat cattle.[30]

In the late 1820's an estimated 4000 to 7000 cattle were being fatted per year in the Scioto Valley.[31] Some of the local farmers sold their shocked corn to neighboring cattle feeders, who were allowed the privilege of bringing their cattle into the lots for feeding.[32] A few of the feeders got their start by buying up the corn crops of such farmers.[33] Once, at least, a speculator, bought up a farmer's corn crop and offered the corn for sale to feeders, who would be allowed without charge the use of "two sets of convenient feeding lots;" experienced men to do the feeding could "be hired on the premises."[34] In 1845 cattle were admitted to fields of unshocked corn for a fee of $6–$10 per acre; a shock of twelve hills brought 7¢.[35] By 1832, and probably much earlier, bluegrass had been inserted into the feeding regimen; cattle were wintered on corn and grass, grazed during the summer on bluegrass, and "soiled" (stall-fed or lot-fed) the following winter.[36]

Some cattlemen fed straight corn in the stalls or lots;[37] but much of this corn passed whole through the animal, and such a diet failed to supply carotene and vitamin A.[38] The wiser cattlemen included shucks, corn stalks, and wheat straw in the winter feed.

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[19] *Scioto Gazette* (Chillicothe, Ohio), September 24, 1840.

[20] *Franklin Farmer*, September 23, 1837.

[21] *Ibid.*

[22] Charles Augustus Murray, *Travels in North America During . . . 1834, 1835, and 1836 . . .* (London, 1839), 224–225.

[23] *Scioto Gazette*, November 22, 1831; Jones, "The Beef Cattle Industry," 174.

[24] *Scioto Gazette*, November 22, 1831; Clement L. Martzolff, ed., Thomas Rogers, "Reminiscences of a Pioneer," *Ohio Archaeological and Historical Quarterly*, 3: 210 (July, 1910).

[25] *Scioto Gazette*, November 22, 1831.

[26] Charles Sumner Plumb, "Felix Renick, Pioneer," *Ohio Archaeological and Historical Quarterly*, 33: 10 (January, 1924).

[27] *Scioto Gazette*, November 22, 1831.

[28] Felix Renick, Account Book.

[29] *Western Star* (Lebanon, Ohio), January 26, 1819.

[30] *Springfield Farmer* (Springfield, Ohio), February 13, 1819.

[31] *Scioto Gazette*, November 22, 1831.

[32] *Supporter and Scioto Gazette* (Chillicothe, Ohio), January 13, 1825.

[33] Charles T. Leavitt, "The Meat and Dairy Industry, 1819–60," unpublished Ph.D. dissertation, University of Chicago, 1931, 93.

[34] *Scioto Gazette*, September 9, 1835.

[35] *Ohio Cultivator* (Columbus, Ohio), August 15, 1845.

[36] *Scioto Gazette*, October 3, 1832; October 27, 1849.

[37] *Franklin Farmer*, January 4, 1840.

[38] G. Bohstedt, "Achieve through Correct Feeding," *Shorthorn World*, 37: 185–186 (August, 1952).

A few cattlemen tried to reduce the corn ration and to increase the proportion of grass or straw:

> I would not during the winter give more than one barrel of corn per head; and another in the month of June on grass—This is the only [way] now [1834] to make money out of cattle or Butchers. . . .[39]

The butchers, however, could detect grass-fattened cattle by their flabby flesh.

Although in 1831 the number of stock cattle sent east from the Scioto Valley was 2½ times the number of stall-fed cattle,[40] the unusually large corn crop of that year caused a large number of stockers to be brought in that fall.[41] Thus, in 1832 the Scioto-Valley feeders had plenty of fat cattle with which to penetrate the Eastern markets. George Renick estimated that 12,000 cattle had been fatted in the Scioto Valley in 1831, and that this figure would at least be duplicated in '32.[42] Felix Renick went to Missouri in the summer of '32 and drove back to the Scioto a herd of 220 Missouri stockers, of which his nephew William of Pickaway County bought eight head for $120.[43] Felix and his partners may have fed some of the Missouri stockers on shocked Scioto corn in the fall of '32 before selling them. The local banks were glad to lend money for the purchase of stockers, for the security (i.e., the animals) increased in value every day, and the interest amounted to 10–12% of the original loan.[44] In 1835 a regular stock-cattle market opened in Chillicothe,[45] but some stockers were also probably handled by merchants like Joline and Co.[46] The value of cattle sent east by Scioto Valley feeders in 1838 was put at $700,000.[47]

Despite the depression, cattle feeding in the Scioto Valley reached its height during the 1840's.[48] The roster of great cattlemen included not only the Renicks but also Jacob Vanmeter (Pike County), James Vause (Pike and Ross), Edwin Harness (Ross), Dr. Arthur Watts (Ross), and John Walke and Henry Baker (Pickaway). Fraser's slaughter house in Chillicothe packed some of this beef for the British market.[49] Campbell and Brown and Co. began beef-packing at Chillicothe in 1848, with the advertisement that they had Irish workmen, well acquainted with preparing the meat for the English market.[50] But more of the fat cattle of the Scioto Valley were taken east by drovers—in 1849 the number was 15,000 head.[51] Ross County in the late 1840's had 17,000–24,000 cattle, of which probably 15,000 were beef cattle excluding milch cows and oxen, and of which probably some 8,000 were being fatted for the eastern markets.[52]

The mid and late 1850's found the Scioto Valley feeders, however, in a vulnerable position. When the price of corn rose to about 40¢ a bushel, cattlemen found it more profitable to sell the corn than to feed it. The railroads, furthermore, were enabling Illinois feeders to send cattle to New York at little more cost than the Scioto feeders could; yet prices in the New York market from 1856 through 1858 were not considered good. The Scioto feeders therefore turned to a new system, "half feeding." Stock cattle were fed through the first part of winter on hay and other fodder and only beginning in January or February on corn.[53]

The third feeding region, the Miami Valley, carried on cattle-feeding on a smaller scale than the Kentucky Bluegrass or the

[39] William P. Hart, letter, Spring Hill, Kentucky, August 29, 1834, to Virginia Shelby, Danville, Kentucky, ms. in possession of the Filson Club, Louisville, Kentucky.

[40] Leavitt, "The Livestock Industry," 86–87.

[41] *Scioto Gazette*, November 16, 1831.

[42] *Ibid.*, November 22, 1831.

[43] Felix Renick, Memo Book, Acts of 1830–33, ms. in possession of Renick Cunningham, Chillicothe, Ohio.

[44] Leavitt, "The Livestock Industry," 94.

[45] *Ibid.*

[46] *Scioto Gazette*, April 9, 1840.

[47] Leavitt, "The Livestock Industry," 100.

[48] William Renick, *Memoirs, Correspondence, and Reminiscences* (Circleville, Ohio, 1880), 15.

[49] *Ohio Cultivator*, May 15, 1849.

[50] *Scioto Gazette*, January 12, 1848.

[51] *Ohio Cultivator*, March 1, 1849.

[52] Ohio Assessor's census of farm animals for 1848, in U. S. Commissioner of Patents, *Report*, 1848 (Washington, 1849); Ohio State Board of Agriculture, *First Annual Report . . . 1846* (Columbus, 1847), 59–62; U. S. *Seventh Census*, 1850, 862–864.

[53] Jones, "The Beef Cattle Industry," 317–319.

Scioto Valley. The occupation of the Miami Valley had proceeded surprisingly slowly; Greene County land was still being cleared in 1820, and there were 32 saw mills and 50 to 75 new farms.[54] Although the farmers were turning from wheat to corn, as a more reliable crop,[55] the cattle-fatting industry remained in its infancy during the 1820's and '30's.[56] The annals of the Union Village Shakers, however, record a small sale of cattle in 1818,[57] and in 1822 much of the beef in the Cincinnati market was coming from Warren County.[58]

A pattern developed in which the Miami Valley brought in stockers for feeding, exported yearling steers to the west-central Ohio graziers, and exported cow calves to the Western Reserve dairymen.[59] In Warren County the Hollingsworths and Steddoms had corn and livestock farms totaling 1600 acres,[60] and the Union Village Shakers were said in 1850 to have 280 "high-grade short-horns," and in 1856 450–500 head of blooded cattle.[61] Warren had in the late 1840's normally 7,000–12,000 cattle, of which 5,000 were beef cattle intended for export to graziers or butchers.[62] Clermont County (where cattle-fatting occurred chiefly along the East Fork of the Little Miami) exported in the 1840's about 1000 head of fat and stock cattle annually, valued at $20,000;[63] fertile Butler County (where lands along the canal brought $50–$100 per acre in 1839) had about 11,000 or 12,000 head of cattle.[64] In the upper Miami Valley Montgomery County (around Dayton) in 1849 had about 14,000.[65] Western Clark County, lying in the Miami Valley around Springfield, engaged in fatting and sent fat cattle in droves to Cincinnati and Pittsburgh.[66] Miami County, far enough north to be bothered by the draining problem, did but little cattle-fatting.[67]

The fourth cattle-feeding region, the Indianapolis-middle Wabash belt of corn farms, developed after the War of 1812. For the most part the region had over 70% of its crop units as corn.[68] In 1850 Putnam County recorded 9,432 cattle other than milch cows and working oxen; Hendricks, 8,439; Montgomery, 11,246; and Tippecanoe, 12,851.[69] The farmers commonly put the same field to corn as many as fifteen years without intermission and without manure. Fat cattle, then fat hogs, then store cattle and store hogs, were admitted to the cornfield in that order. The feedlot or stall feeding of hay and fodder were also of some importance.[70]

The four feeding regions, particularly the Kentucky Bluegrass and the Indianapolis-middle Wabash region, raised some of their own stockers, as we have seen. But all four regions also brought in stockers from the outside; in fact, George Renick estimated in 1831 that perhaps not more than one-half the cattle fatted in the Scioto Valley had been bred there.[71] The stockers were supplied by six ranges: The Kentucky range, the southern-Ohio range (on both sides of the Scioto Valley), the west-central

[54] *Western Star*, November 11, 1820.

[55] Leavitt, "The Livestock Industry," 83.

[56] Tax Duplicate, Warren County, 1836–1839, ms. in Auditor's Record Room, Warren County Courthouse, Lebanon, Ohio.

[57] Josiah Morrow, scrapbook, ms. in possession of the Philosophical and Historical Society of Ohio, Cincinnati.

[58] *Western Star*, April 6, 1822.

[59] Morrow, scrapbook; Jones, "The Beef Cattle Industry," 291.

[60] L. H. Everts, *Combination Atlas Map of Warren County, Ohio* (Philadelphia, 1875), 65.

[61] Morrow, scrapbook; *Ohio Farmer* (Cleveland), June 7, 1856.

[62] Ohio Assessor's census, 1848, 1849; Morrow, scrapbook.

[63] Ohio State Board of Agriculture, *Fifth Annual Report . . . 1850* (Columbus, 1851), 295; *Fourth Annual Report . . . 1849* (Columbus, 1850), 66–67.

[64] J. Gould, "Wanderings in the West in 1839," *Indiana Magazine of History*, 30: 79 (March, 1934); Ohio Board, *Third Report*, 1848 (Columbus, 1849), 26–28; *Fourth Report*, 1849, 222–224.

[65] Ohio Board, *op. cit.*

[66] Oliver S. Kelly, "Springfield as Remembered Sixty Years Ago," *Yester Year in Clark County*, 1: 30 (Springfield, Ohio, 1947); Morrow, scrapbook.

[67] Ohio Board, *Fourth Report*, 1849, 170–173.

[68] Arlin D. Fentem and Robert Reece, "A Preliminary Study of Agriculture in the Old Northwest in 1840," ms. in possession of the authors, University of Wisconsin.

[69] U. S. *Seventh Census*, 1850, 790–792.

[70] Fentem and Reece, "A Preliminary Study of Agriculture."

[71] *Scioto Gazette*, November 22, 1831.

Ohio upland, the artificial grasslands of Darke and Mercer counties, the Grand Prairie of Indiana northwest of Lafayette, and the prairie range of Illinois. By 1860 feeding had advanced into four of these ranges.

The Kentucky range was a sprawling area including such diverse country as the foothills and knobs of Montgomery and Powell counties, the Green River Barrens, parts of the Pennyrile, and the grasslands of Marshall County, way over beyond the Tennessee River. Ohioans obtained stockers from the Kentucky range and also from the Inner Bluegrass itself. In 1815 Felix Renick left money with Lewis Heath of Paris, Bourbon County, to buy cattle for him. Heath spent "60 days purchasing, driving, etc."[72] A herd of 296 head was assembled, the purchase prices being an average of $24 per head. A. Miller, George Renick, and William Lewis also sent money to Kentucky for buying cattle. Some of the stockers assembled at Paris for Ohioans came from such Bluegrass cattlemen as Harrison, Crockett, Clay, and Bedford, but others probably came from outside the Inner Bluegrass.[73] In 1816 Felix went into Kentucky himself, via Blue Licks, and brought a herd of stockers back to Ohio.[74] William Renick later recalled that as a young man in the years 1821–1825 he had ranged over all of Kentucky as far south as the Green River Barrens picking up stockers or buying collected lots of stockers.[75] Store cattle were still available in Bourbon County, in the Inner Bluegrass, in the early 1830's,[76] and eventually a stock-cattle market arose in Paris when thin cattle from the Kentucky range to the east and north were brought into Paris for sale during the sessions of the Bourbon County court.[77] Stockers are noted as plentiful in Kentucky in 1841, though still high-priced.[78] Far to the west, Marshall County, which had belonged to the Chickasaws until 1818, raised a "scrub breed of cattle, [which] having more industry, do better on our wild grass . . ."[79] Shorthorn bulls which the Bluegrass feeders had culled out for one reason or another were available to rangeland farmers.[80] By 1840 Warren and Barren Counties were doing some cattle-feeding; these two counties by 1850 were producing as much corn as some of the Inner Bluegrass counties had in 1840.[81] But some people in the Barrens still thought grass could be the only basis of their cattle industry.[82]

A second stocker country was the hill country of southern Ohio—on both sides of the Scioto Valley. William Renick purchased thin cattle here during the years 1821–25.[83] The stockers coming from the country east of the Scioto Valley—so-called "Hocking cattle"—were healthy, hardy, and compact, but too small to benefit fully from lavish feeding. The feeders coming from Highland, Adams, and Brown counties were called "Brush Creek cattle," after a creek running into the Ohio River. The "Brush Creek" cattle had the same good qualities as the "Hocking cattle," were a little larger, and fatted early.[84] Adams County had some 8,000 cattle in 1846 and reported some export of cattle during the late '40's.[85] The original owners of the "Hocking cattle" kept them on "short pasture" during summer, and in winter on browse supplemented by whatever hay might have been cut and stacked

[72] Felix Renick, Account Book.

[73] *Ibid.*

[74] *Ibid.*

[75] William Renick, *Memoirs*, 55.

[76] *Western Citizen*, February 27, 1830; September 17, 1831.

[77] *Kentucky Farmer* (Frankfort), December, 1858.

[78] William P. Hart, letter, Spring Hill, Kentucky, August 27, 1841, to Virginia Shelby, Danville, Kentucky, ms. in possession of the Filson Club, Louisville, Kentucky.

[79] *Valley Farmer* (St. Louis, Missouri), January, 1857.

[80] *Franklin Farmer*, November 9, 1839.

[81] U. S. *Sixth Census*, 1840, 274–278; *Seventh Census*, 1850, 624–627.

[82] Isaac Lewis, letter, Walnut Grove, Kentucky, March 26, 1857, to Brutus J. Clay, Paris, Kentucky, ms. in possession of Cassius M. Clay, Paris, Kentucky.

[83] William Renick, *Memoirs*, 55.

[84] Charles W. Burkett, *History of Ohio Agriculture* (Concord, New Hampshire, 1900), 110–111.

[85] Ohio Board, *First Report*, 1846, 72; *Fourth Report*, 1849, 40–41.

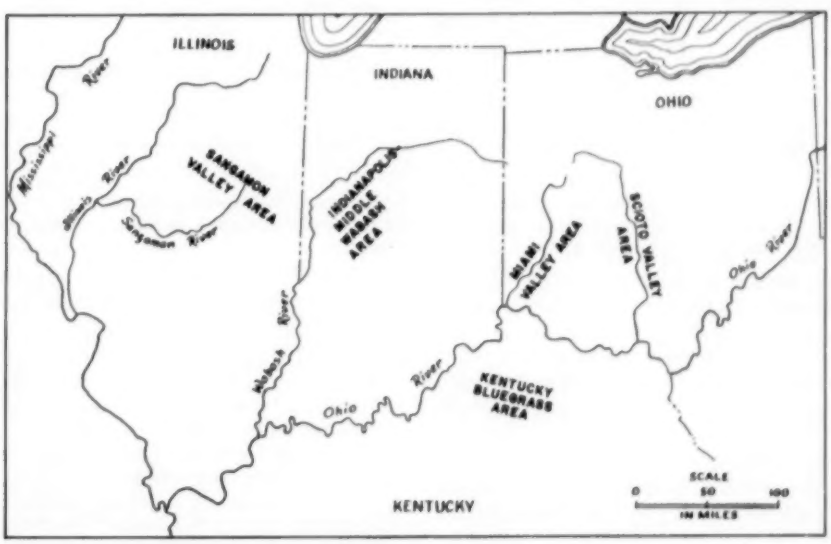
on the scattered meadows.[56] Athens County exported 5,000–6,000 stockers in 1849.[57] Although feeding never made much of an advance into the hill counties of southeastern Ohio, some cattle-feeding did occur west of the Scioto, in Highland County, where Gov. Trimble was active in the cattle industry; this county had some 10,000 cattle in the late 1840's.[58] But Adams, Brown, and southern Highland counties remained largely a stocker country, except for the bottoms.

The third range was the west-central Ohio upland. This tableland between the middle Scioto Valley and the upper Miami Valley extends from the southern part of Fayette County northward to Logan County. Although most of Fayette County was forested, natural grasslands made the upland attractive as an open range; western Pickaway County had clay-soil white-oak prairies, Madison County had a "buck prairie" and the Darby Plains, and Champaign County had "oak openings," King's Creek Prairie, and Pretty Prairie.

We have mentioned herds from Kentucky being pastured in Madison County in 1812. Shortly thereafter, however, feeding had begun in the upland. The farmers of Champaign County, who had good corn lands along their creeks and in some of their prairies, were estimated in 1815 to be receiving $100,000 annually for fat cattle, a sum unlikely to be fetched by grass-fat cattle alone.[59] E. Johnson of Oldtown claimed in 1816 that his Paint Creek bottom land (in what is now Fayette County) produced 3,000 bu. of corn annually and 115 bu. per acre,[60]—western farmers, however, habitually claimed their land would produce 100 bu. per acre.

Despite these beginnings of corn-growing and cattle-fatting in the upland, most of the upland remained in 1816 an unsettled wilderness—because of marshiness, the Virginia military bounty system, absentee ownership, land aggrandizement by speculators, and—said the Yankees—the laziness

[56] Jones, "The Beef Cattle Industry," 289.
[57] Ohio Board, *Fourth Report*, 1849, 43.
[58] *Ibid.*
[59] Daniel Drake, *Natural and Statistical View or Picture of Cincinnati and the Miami Country* (Cincinnati, 1815), 56.
[60] David Thomas, *Travels through the Western Country in the Summer of 1816* (New York, 1819), 104.



Range–Feeder Areas of the Ohio Valley

of the Southerners who owned the land. A traveller commented in 1816 that the typical farmer in Fayette County left girdled trees standing, at the risk of their falling on his wife, children, and cattle, and that "young cattle . . . are often destroyed by wolves."[91] Around 1818, travellers reported the prairies and pastures between Coshocton and the Miami country as crowded with herds of cattle.[92] In the upland, until the end of the 1820's, herdsmen tended the cattle, in herds of 100–300, which were marked with brands.[93] There was plenty of unsettled, open range, either still reserved to be taken up by scrip, or belonging to land-speculator Walter Angus Dunn, or belonging to absentee owners such as one Virginian who owned 3880 acres in the upland.[94] The fencing of large holdings, however, was underway. A typical "stock farm" in the upland in 1819 had 1800 acres, of which 1000 were fenced.[95]

The practice of summer-pasturing Ross County cattle in the upland continued even as the open range was being fenced. In 1831 a Madison Countian at Rosedale offered to pasture 400 or 500 head of Ross County cattle on "pasture well-watered throughout the season with living water."[96] Three pastures totalling 1500 acres on the North Fork of Paint Creek in Fayette County were offered for rent in 1835.[97] The usual price for wintering on grass and hay in Madison County was 40¢ a month in the 1840's.[98]

The native cattle of the west-central Ohio upland were known as "Barren cattle." These were much larger than the "Brush Creek" stockers, but were loose made, harder to fatten, and much subject to disease. The traders in "Barren cattle" counted on a loss of from 3 to 5% per year by the bloody murrain.[99] By the mid '50's, however, this native breed had undergone considerable improvement through repeated additions of Shorthorn blood.

The 1830's and '40's witnessed the graziers of the west-central Ohio upland rise to prominence. A Mr. Gwinn in 1832 had a farm of 4000–5000 acres enclosed in large fields for the support of 1200 head of cattle.[100] In 1838 David Selsor went into the grazing business at the headwaters of Paint Creek.[101] Col. Buffenborger had a grazing farm on the "buck prairie" just over the Madison County line from South Charleston:

> . . . a perfect specimen of a purely grazing or cattle farm. It embraces 2000 acres of beautiful smooth prairie land . . . with a few large trees. . . . Of this land he has twelve hundred acres in one field. . . .[102]

Buffenborger, Linson, and Selsor owned a total of about 10,000 acres.[103]

These graziers of the west-central Ohio upland obtained their cattle from outside sources, some from Warren County (in the Miami Valley), more from Illinois and Missouri;[104] the National Road brought these latter cattle to the heart of the upland. The cattle were purchased for grazing at two or three years of age and occasionally as yearlings. A buck-prairie grazier such as Gwinn or Buffenborger would snort that the production of calves "don't pertain to my business . . . that is done by small farmers."[105] Some graziers, however, did keep cows to produce calves. Madison and Fayette County graziers about 1850 were pasturing at least 25,000 head of cattle per year from the West (Indiana, Illinois, Mis-

[91] *Ibid.*

[92] Thompson, *A History of Livestock Raising*, 93.

[93] Jones, "The Beef Cattle Industry," 179.

[94] Walter Angus Dunn, List of Debts Owing . . . on the 1st of October, 1827, ms. in the University of Kentucky library; *Scioto Gazette and Fredonian Chronicle*, November 26, 1819.

[95] *Scioto Gazette and Fredonian Chronicle*, June 11, 1819.

[96] *Scioto Gazette*, April 27, 1831.

[97] *Scioto Gazette and Independent Whig*, April 15, 1835.

[98] *Ohio Cultivator*, August 15, 1845.

[99] Burkett, *Ohio Agriculture*, 110–111; William Renick, *Memoirs*, 56.

[100] Leavitt, "The Livestock Industry," 92.

[101] David Selsor Graham, interview with the author, Midway, Ohio, September 9, 1955.

[102] *Ohio Cultivator*, August 1, 1845.

[103] Graham, interview.

[104] Morrow, scrapbook; Jones, "The Beef Cattle Industry," 180.

[105] Jones, "The Beef Cattle Industry," 180.

souri, Iowa, and Wisconsin).[106] About 20,000 head of cattle, 3 years old and upwards, were sold and driven from Madison County during seven months of 1848.[107] Ordinarily, Madison County cattle went to the Cincinnati market, some to the Scioto feeders, some to the eastern market cities, and more to the feeders of New York and Pennsylvania. Pasturing was still the chief livelihood of Fayette County in 1848.[108] Clark County, the eastern half of which belongs to the upland and the western half of which belongs to the Miami Valley, exported 3000 head of cattle in 1850, "mostly sold to feeders on Scioto and driven east . . ."[109] A regular cattle market was opened in the heart of the range, at London, seat of Madison County, in 1855.[110] So many cattle were still roaming about unfenced in the upland in the 1850's that trains on the Little Miami Railroad between Xenia and Columbus were reported to have killed 1600 head within four years.[111]

Grass-grazing, however, was slowly losing ground to corn-feeding in the upland. Possessing land along Paint Creek in Fayette County, Gen. Beatal Harrison probably corn-fatted some of the cattle in which he dealt and which he drove east over the mountains.[112] The native forest of Fayette County had been almost entirely cleared by 1840. Wheat was relatively more important in Fayette than in the Miami Valley;[113] stock cattle in Fayette were sometimes wintered on nothing but a straw pile.[114] By 1854, enough corn was apparently being grown along Darby and Deer Creeks in the upland to support some feeding there.[115] David Selsor, of southern Madison County, bought corn from neighbors to supplement his grazing operation.[116] Selsor's fancy corn-fed "Christmas beef" won several trophies in New York City.[117] A few miles to the northwest of Selsor's estate was the village of South Charleston, where drovers, having put up at the Ackley Hotel, assembled herds of range cattle and fat cattle and took them onto the nearby National Road.[118] In and around this little "cow town" lived two cattle dealers and twenty-seven cattle raisers.[119] As early as 1845 William Pierce and the Harrolds were doing cattle-feeding just south of South Charleston, and the vicinity of this town became also a center of breed improvement in the upland.[120] Western Clark County had always done corn-feeding; now that activity had spread eastward to the South Charleston area, where the county lines of Clark, Madison, and Fayette come together. Yet Clark County in 1850 had 5000 or 6000 western cattle at grass.[121] Over much of the west-central Ohio upland, corn raising and cattle feeding awaited solution of the drainage problem, which was being coped with in the upland by such means as "gopher ditches."[122]

The fourth great range was the marshy Grand Prairie of Indiana northwest of Lafayette. In the mid or late 1820's young Thomas Atkinson was herding cattle on this prairie, ranging over Benton County and into what is now Newton County; these cattle he eventually drove to the feeding area of southeastern Pennsylvania. Soon thereafter, however, Henry L. Ellsworth, Commissioner of Patents in the 1830's, arguing through farm journals, pamphlets, and a wide correspondence, encouraged the development of the Grand Prairie. In 1849 he was reported to have

[106] *Ibid.*, 181.
[107] *Ibid.*, 184–185.
[108] Ohio Board, *Third Report*, 1848, 48.
[109] *Ibid.*, *Fifth Report*, 1850, 284.
[110] Leavitt, "The Livestock Industry," 94.
[111] Clarence H. Danhof, "The Fencing Problem in the Eighteen-Fifties," *Agricultural History*, 18: 170 (October, 1944).
[112] L. H. Everts, *Illustrated Historical Atlas of Fayette County* (Philadelphia, 1875), 7.
[113] Fentem and Reece, "A Preliminary Study of Agriculture."
[114] Jones, "The Beef Cattle Industry," 289–290.
[115] *Ohio Railroad Guide* (Columbus, 1854), 43–44.
[116] Graham, interview.
[117] *Ibid.* These trophies are still in possession of the family.
[118] *Ohio Cultivator*, August 1, 1845; Graham, interview.
[119] L. H. Everts, *Illustrated Historical Atlas of Clark County* (Philadelphia, 1875), 93.
[120] *Ohio Cultivator*, August 1, 1845.
[121] Jones, "The Beef Cattle Industry," 181.
[122] Graham, interview.

1200 acres in corn that averaged 60 bu. per acre.[123]

Some of the corn-farmers on the prairie sowed a "sod crop" the first year. Five good yoke of cattle with a large breaking plow, said Ellsworth, would break up 1½ to 2¼ acres per day, according to the weather.[124] Cattle were wintered on bluegrass (if it lasted into the winter) and corn; the corn in their stomachs and the shelter provided by corn stalks in the field were thought to keep the cattle warm enough that they did not need sheds.[125] In localities where little corn was raised, the cattle were put in covered enclosures for the winter, where they were fed stacked prairie hay with perhaps a small ration of corn or meal or corn fodder.[126] Herdsmen took the cattle onto the open prairie range for the months May to December; here all that had to be provided for them was salt.[127] Moses Fowler (who came in 1839), Edward Sumner (who came in 1846), and Adams Earl, all did both grazing and feeding on their huge properties (up to 30,000 acres per man).[128] Sumner had so many cattle (about 2000) and needed so much feed, that neighboring farmers raised corn specifically to supply this need.[129] By 1850, however, most of the Grand Prairie remained range; Tippecanoe County had 12,851 cattle, but Benton, the heart of the prairie, only 2,379.[130]

The fifth range was the Illinois prairie, including Champaign and McLean counties and extending southwest to a point near Covington and west into the Sangamon Valley. By 1818 this was a source of young cattle for the Ohio graziers.[131] The young cattle in Illinois were fond of the coarse, strong "prairie grass," but this grass was susceptible to destruction by feeding or mowing. Yard grass, which appeared on heavily grazed and trodden land, also appealed to cattle, and besides it was drought-resistant.[132] Settlers destroyed the prairie flies by burning the prairie grass in June instead of the fall and then pasturing the grass after it grew anew.[133]

Stock ran at large on the open prairie range. Cattle were fenced out, not in. A fence needed to be "bull strong, horse high, and pig tight."[134] Often a farmer would live for many years on his farm without erecting a barn or even a shed for his cattle.[135] Groves provided shelter for the stock. All calves were kept, whether or not inferior, and whether or not they could be supported properly, because the calves enticed the cows home at night from the open range.[136] Despite some of the casual methods employed on the prairie, Illinois young cattle on the prairie were said to be ready for the knife by the first of June or even the middle of May, and an Illinois booster claimed their meat was "tender and delicious."[137] These cattle were fat though not large, seldom weighing over 600 or 700 lbs.[138] When the prairie pasture did not suffice, it was necessary to buy feed for the cattle in the form of timothy, clover, or prairie hay; the common price for winter-foddering for 3 to 5 months was $2.00–$2.50 per head.[139]

The open prairie range was slow to be broken to corn farming. Settlement pre-

[123] Sherman N. Geary, "The Cattle Industry of Benton County," *Indiana Magazine of History*, 21: 28 (March, 1925); Paul W. Gates, "Hoosier Cattle Kings," *ibid.*, 44: 1, 4–6 (March, 1948).

[124] U. S. Commissioner of Patents, *Report*, 1845 (Washington, 1846), 383–385.

[125] *Ibid.*, 1843, 120–121.

[126] *Rensselaer Gazette* (Rensselaer, Indiana), May 25, 1859.

[127] *Ibid.*

[128] Gates, "Hoosier Cattle Kings," 13-15.

[129] *Ibid.*

[130] U. S. *Seventh Census*, 1850, 790–792.

[131] Rudolf A. Clemen, *The American Livestock and Meat Industry* (New York, 1923), 44.

[132] W. C. Flagg, *Agriculture of Illinois 1682–1876*, Illinois Dept. of Agriculture, *Transactions*, 13: 311–312 (1875).

[133] *Scioto Gazette*, October 5, 1843.

[134] Theodore L. Carlson, *The Illinois Military Tract, A Study of Land Occupation, Utilization, and Tenure* (University of Illinois Press, Urbana, 1951), 34, 37, 84. Although the Military Tract is not in the Ohio Valley, prairie conditions there obtained elsewhere in Illinois too.

[135] *Ibid.*

[136] J. M. Peck, *A Guide for Emigrants* (Boston, 1831), 166–167.

[137] *Ibid.*

[138] James Hall, *Statistics of the West at the Close of the Year 1836* (Cincinnati, 1836), 146.

[139] Carlson, *The Illinois Military Tract*, 129.

ferred the "dry" prairie over the "wet," but very little even of the "dry" prairie had been taken up by 1840. One deterrent may have been the relatively high cost of trained oxen ($50 to $80 per yoke) or the $2 to $3 per-acre cost of hiring prairies broken. Settlement followed the timber-fringed streams. There was no state statute requiring livestock to be fenced; hence many farmers were afraid to break the prairie, because they would either have to haul wood a long distance or else run the risk of having their unfenced crops trampled by range cattle.[140]

Moreover, the open-prairie-range methods were still profitable in the early 1850's. Illinois prairie-fed and foddered cattle of 3–5 years of age were ready for the market at a cost of $6–$12 per head for the producer. They could be sold for up to $25 per head. In fact, even the coarsest cattle brought $11–$14 per 100 lbs. (estimated net weight) in the New York City stockyards in early May of 1855.[141]

The Illinois range thus survived into the 1850's, even within sight of Springfield, in the Sangamon Valley. The groves were said to be infested with robbers and counterfeiters; and in 1855 an incident of cattle-rustling occurred.[142]

Corn-fatting, however, was encroaching on the range, particularly in the Sangamon Valley, but also in McLean County, where Isaac Funk had his cattle empire, and which in 1850 had 15,000 cattle and three times as much corn as Champaign County.[143] The corn farmers, if they did not plant a "sod crop" the first year, broke the prairie by plowing in June or July, and letting the sward lie until the next spring.[144] Many of the "sloughs" which were rejected by the first settlers became "dry" prairies merely by exposure to sun and air through annual mowing and being fed down.[145] The coming of railroads made lumber for house building, and Wisconsin pine logs for fence-building, cheaply available.[146] Wire fencing had a good foothold in Illinois by 1857; and the Osage-hedge fencing assumed the proportions of a craze in the '50's.[147]

Cattle were sometimes turned into the cornfields in the fall, after the ears had been picked, to forage for themselves; stalks were cut and brought into the stalls for fodder, and the picked corn was stored in cribs from which it was rationed out.[148] In the early 1840's, "Frank" Harris in Sangamon County would buy 100 or 200 cattle, feed them during the winter on shock corn purchased for 10¢ a bu., and turn them out on the prairies the last of April—where "they had a range of 10,000 acres."[149] During the winter he bought other cattle in small lots from farmers, to be delivered April first. In 1853-54 he bought 950 cattle and 63,000 bu. of corn to put with his own corn for stall-feeding.[150] In Morgan County, across the county line from New Berlin, Jacob Strawn, too, was doing stall-feeding; in 1854 he had 2300 acres in corn.[151]

When, therefore, in the period 1856-58, cattle prices sagged in the New York market, and Illinoisans found it no longer profitable to send inferior cattle there, they were prepared to supply well-finished grass cattle or corn-fed beeves. These they sent by railroad, offering severe competition for the Scioto feeders.

As in Illinois, feeding advanced into those ranges that had a favorable natural geography, although in east-central Illinois

[140] Fentem and Reece, "A Preliminary Study of Agriculture."

[141] Carlson, *The Illinois Military Tract*, 129; *New York Tribune*, May 3, May 10, 1855.

[142] Mary V. Harris, ed., "The Autobiography of Benjamin Franklin Harris," *Transactions of the Illinois State Historical Society for the Year 1925*, 89.

[143] U. S. *Seventh Census*, 1850, 670-682.

[144] Gould, "Wanderings," 99.

[145] Carlson, *The Illinois Military Tract*, 29.

[146] Richard Bardolph, "Illinois Agriculture in Transition, 1820–1870," *Journal of Illinois State Historical Society*, 59: 249 (September, 1948).

[147] *Ibid.*, 256–258.

[148] Fentem and Reece, "A Preliminary Study of Agriculture;" Carlson, *The Illinois Military Tract*, 130.

[149] Harris, ed., "The Autobiography," 77.

[150] *Ibid.*

[151] Clarence P. McClelland, "Jacob Strawn and John T. Alexander, Central Illinois Stockmen," *Journal of the Illinois State Historical Society*, 34: 186–191 (June, 1941).

cash grains eventually became more important than feeding. In the ranges on the northern fringe of the Ohio Valley, the Corn Belt was born, and this happened well before 1860. Much of the Kentucky range, however, has never gone in for feeding; although there is some corn-fatting in the bottoms along the Green River, Kentuckians trying to describe a skinny woman will still say, "She's as bony as the hips of a Green River cow."[152] The historic feeding regions of the Scioto and the Kentucky Bluegrass became overshadowed by the great Corn Belt stretching northwest through Iowa. Today, some of the cattlemen in the Kentucky Bluegrass find it more feasible to buy the corn they use for feeding (it is trucked in from Ohio) than to raise it themselves.

[152] Writer's Project of the Works Progress Administration, *Kentucky, A Guide to the Bluegrass State* (New York, 1939), 294.

Mechanizing the Cotton Harvest

JAMES H. STREET*

During the 1955 crop season nearly three and a half million bales of cotton, or about one-fourth of the American crop, were harvested by machine. In California, where mechanization is farthest advanced, machines gathered two-thirds of the crop. Yet a scant decade before, the amount of cotton that was mechanically harvested was negligible.

Behind this revolutionary change, which is still proceeding, lies a century of intermittent efforts to mechanize the crop, most of them doomed to failure. Cotton has long been one of our most labor-requiring farm enterprises, and the annual gathering of the crop has been an extremely burdensome and underpaid form of human drudgery. The need to preserve a large low-wage labor force for this purpose has been one of the roots of social difficulty in the South. Why did it take so long to apply the familiar technique of labor-saving invention to this vast regional enterprise?

The question involves many considerations, but it is the purpose of this paper to review only the technological aspect of the problem. The history of inventions designed to mechanize the cotton harvest is a peculiarly fascinating one because of the great variety of approaches tried out at one time or another, and the truly formidable technical, economic, and social obstacles which had to be overcome in order to find solutions.

The Nature of the Problem. Cotton, unlike the small grains whose simple characteristics permitted mechanization much earlier, is a distressingly difficult crop to harvest by a uniform mechanical method. The crop is grown under a considerable diversity of soil and climatic conditions, and the resultant plant varies from a scrubby knee-high bush to a rank, wide-branching plant taller than a man's head. As many as five hundred varieties of American upland cotton have been grown in this country simultaneously, with great variation in plant conformation, hairiness of leaf, tightness of boll, and other characteristics which seriously affect the ease of harvesting.

Much of the value of the fiber depends on its freedom from leaf trash, staining by foliage sap, and tangling with weeds. This factor, together with the waste entailed when the fully exposed fleece is readily knocked to the ground, makes picking a delicate operation. Perhaps the most troublesome aspect of the plant is that its bolls

* The writer wishes to acknowledge permission from the University of North Carolina Press to draw material for this article from parts of his book, *The New Revolution in the Cotton Economy*, currently in press.

do not ripen uniformly and the crop therefore cannot be gathered at once. Unripe bolls are likely to be injured by any crude mechanical device used to harvest the early crop. These were some of the technical factors with which would-be inventors of successful cotton harvesters had to contend.

Inventions to Harvest the Crop. Even under the conditions of slavery some efforts were made to reduce the amount of hand labor in cotton production. As early as 1820 an imaginative Louisiana planter imported a cargo of Brazilian monkeys with the hope of training them to pick cotton.[1] Had they proved sufficiently adaptable it is conceivable that monkey breeding might have replaced the slave trade and thus averted critical events leading to the Civil War.

The first recorded invention of a machine to harvest cotton was a mule-drawn picker patented by Samuel S. Rembert and Jedediah Prescott, of Memphis, in 1850.[2] This machine embraced two sets of rotating cylinders and disks studded with teeth to comb the cotton off the plants. Although it may be considered a simple prototype of the modern spindle picker, it was too crude to do an effective job.

By 1864 there were twelve patents in effect on a variety of manual or mechanical picking aids, and in nearly every succeeding year at least one patent has been granted for some type of harvesting device.[3] Over 1800 pa. ents had been granted on new or improved models by the end of World War II, when a commercial market for these machines first began to develop. Broadly grouped, these inventions have included pneumatic extractors, electrical devices, threshers, chemical processes, strippers, and spindle pickers.[4]

Unsuccessful Forerunners. Beginning with a patent issued in 1859, some of the most persistent efforts were directed toward the perfection of various types of pneumatic extractors intended to remove the lint from the boll either by suction or by a blast of air. The machines usually consisted of a vacuum tank mounted on a cart, with flexible hoses applied to the individual bolls by a crew of operators.[5] The chief technical problem was to design a nozzle that would suck (or blow) the tight-fitting locks of cotton from the burr and convey it to a bag. A small amount of cotton was actually picked with a machine of this type in the Imperial Valley of California during a labor crisis in 1918.

During the twenties the International Harvester Company made an extensive investigation of both the suction and air-blast methods of extraction. Company engineers concluded that a crew of skilled hand pickers could easily outdistance a similar crew working with suction tubes because the unaided human hand is more dextrous than any extractive device which must be applied separately to each boll. They thereafter directed their efforts toward the complete elimination of the manual element from the picking process.

Efforts by others to devise a successful pneumatic picker continued well into the thirties.[6] W. C. Durant, the automobile manufacturer, produced a light gasoline-powered machine weighing only three hun-

[1] Arthur W. Page, "A Cotton Harvester at Last," *World's Work*, 21: 13,748–60 (December, 1910). This article is chiefly devoted to a description of Angus Campbell's spindle picker, discussed below.

[2] U. S. Commissioner of Patents, *Report, 1850*, Part I, *Arts and Manufactures* (Washington, 1850), 233–34.

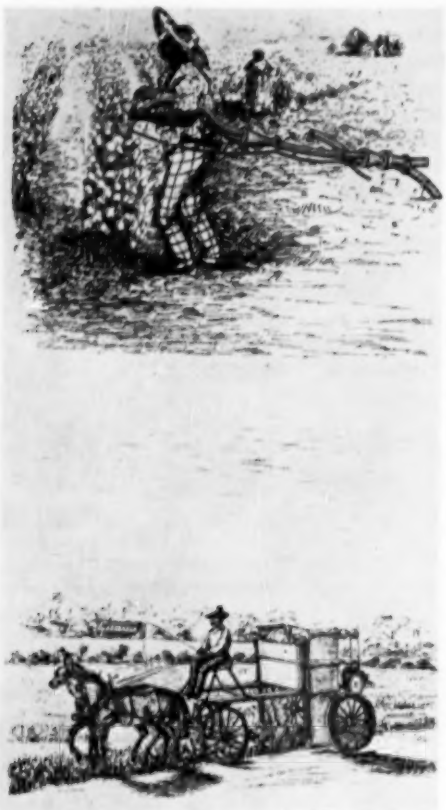
[3] See J. L. Watkins, *King Cotton: A Historical and Statistical Review, 1790–1908* (New York, 1908), 149, 175, 259, for descriptions of some of the earliest inventions.

[4] H. P. Smith and Others, *The Mechanical Harvesting of Cotton*, Texas Agricultural Experiment Station, Bulletin 452 (College Station, August, 1932), contains illustrations of many of the early devices and a list of patents granted on all types of cotton harvesting equipment from 1850 to 1932.

[5] "An Improved Cotton Picker," *Scientific American*, 67: 291 (November 5, 1892); William Dale, "A Machine for Picking Cotton," *Scientific American*, 94: 371–72 (May 5, 1906); "Cotton Picking by Suction," *Literary Digest*, 78: 29 (August 4, 1923).

[6] "New Mechanical Cotton Picker," *Literary Digest*, 103: 32 (November 16, 1929); Robert K. Straus, "Enter the Cotton Picker," *Harper's*, 173: 389 (September, 1936); F. D. McHugh, "Machines Pick Cotton, But—," *Scientific American*, 159: 242–45 (November, 1938).

dred pounds which employed a set of rotary blades, as well as suction, in the picker-heads. His firm in St. Louis built some five hundred of these machines, but was unable to dispose of them in this country and in time sold most of them to the



Exhaust flexible pipe picker of 1859 (above)
Electric belt picker of 1870 (below)

Soviet government, which during the thirties displayed an active interest in mechanical cotton harvesting.

Some experimenters sought an electrical solution. As early as 1868 a Brooklyn inventor patented a device to detach the fiber from the boll by electrical attraction and to convey it, by means of a statically charged belt, to a receiving box. Others later tried to apply the same principle, all without success, since an electrical charge proved insufficient to pull the cotton from the boll.

A different application of electricity was that of L. C. Stuckenborg of Memphis, a diligent investigator who announced in 1922 that after fourteen years of work he had successfully combined a vacuum machine with a set of electrically operated brushes revolving inwardly at the end of each suction tube.[7] The operation of the brushes was said to have suggested itself to Stuckenborg one day when he observed a cow which had broken into a cotton field adroitly extract the fiber with her horny tongue in order to obtain the tasty oil-seeds. His picking apparatus was mounted on a gasoline tractor which provided power for eight electric motors required to drive four sets of picking brushes and four suction and cleaning fans. This rather elaborate machine was also doomed to failure, since the electrically operated brushes added little to its performance, and more especially because the machine had the same disadvantage as other pneumatic machines—it did not result in a sufficient saving of hand labor. Stuckenborg spent a good many more years trying to simplify and improve his machine, to no avail.

The idea occurred to a number of inventors, possibly suggested by the successful harvester-thresher combines used in other crops, to construct a machine that would cut the entire cotton stalk and separate the lint from the rest of the plant by threshing action. Such a machine would necessarily have to be rather large and complicated in order to handle the massive bulk of the cotton plant along with the lint. A machine of this type was patented in 1886, but its performance was evidently not remarkable enough to record. In 1925 the International Harvester Company experimented with a machine patterned after a grain separator. It was designed to pull the entire boll off the plant and separate out the cotton. It was soon abandoned be-

[7] "The Successful Cotton Picker," *Scientific American*, 126: 179 (March, 1922).

cause it took the mature and immature bolls indiscriminately and did not separate the lint effectively.

Proposals to utilize the entire cotton plant by some process of chemical digestion, thus obviating the need to extract the lint from the boll, were made recurrently. Robert R. Roberts of Washington, D. C., who pioneered in the development of delinted seed, in 1906 announced that the cotton stalk could be pulped and made into paper. Since this would have greatly reduced the value of the product, there was little interest in the suggestion.[8]

Probably the most extensive experiments along this line were made by Dr. Frank K. Cameron of the University of North Carolina, who sought to substitute the entire cotton plant for wood pulp as a basic source of cellulose in the manufacture of rayon.[9] He recommended that the cotton plants be thickly sown, mown and baled by machine like hay, and then dried and powdered. The oil contained in the seeds was to be removed by the use of a solvent, and the remainder of the plant chemically digested into alpha cellulose. After a number of years of experimentation Dr. Cameron claimed that his process was a laboratory success. Coming during the depression years, the announcement caused alarm among farmers who feared a radical change in methods of production. The need for a substitute for wood pulp was evidently not pressing enough, however, to insure funds for development and the method thus did not become commercially practicable.

Stripping Machines. Cotton strippers, also known in some of their early forms as cotton sleds or "sledders," remove the cotton, burr and all, from the stalk by combing the plant either with extended teeth or by drawing it between stationary slots, revolving rolls, or brushes. A patent for a rather simple invention of this kind was granted to John Hughes of New Berne, North Carolina, in 1871. The following year Z. B. Sims of Bonham, Texas, patented a sled with projecting fingers for the same purpose.

A somewhat more complicated and skillfully constructed model appeared in 1874, when W. H. Pedrick, of Richmond, Indiana, patented a stripper which employed two revolving rolls studded with teeth to pull the ripe cotton from the plants. Despite the fact that these machines closely resembled in principle some that later came into use, they were long neglected because it was felt that they wasted too much cotton and lowered its grade excessively.

The idea of mechanically stripping cotton was re-introduced into the Texas Panhandle in 1914, when a bumper crop coincided with prices so low that the cost of hand picking could not be covered. Several farmers in desperation harvested their cotton by dragging it with a section of ordinary picket fence tied to a team. This makeshift method resulted in cotton so full of trash and unopened bolls that it was refused at the gin. Thereupon these farmers, undaunted, took their cotton to a grain thresher and had it threshed! The threshing process broke open the unripe bolls and removed some of the trash, after which it was possible for the gin to handle it more satisfactorily. At best the resulting product must have been of rather low grade, and stripping for some time thereafter was utilized only as a last resort.

Nevertheless, because the cotton grown in this area is subject to early frost and was often pulled or snapped in the boll by hand, growers demanded that the ginners develop methods of handling immature or "bollie" cotton. Consequently gins were redesigned to include more effective cleaning and burr-extracting devices than were found in most parts of the Cotton Belt.

In 1926 there was another critical sea-

[8] "Utilization of the Entire Cotton Plant," *Scientific American*, 95: 343 (November 10, 1906).

[9] "Cotton Mown Like Hay and Chemically Digested," *Science*, n.s. 83: 10 (May 22, 1936); Alfred R. Macormac, "Utilization of the Whole Cotton Plant," *Scientific Monthly*, 43: 285–86 (September, 1936); "Scientia Omnia Vincit; Experiments in Turning the Whole Cotton Plant into Rayon," *Scientific American*, 163: 243 (November, 1940).

son in the High Plains. The crop was unusually large, prices fell abruptly, labor for hand harvesting was scarce and expensive, and the weather was unfavorable for picking by hand. Farmers were again compelled to take unusual measures to save the crop. Many of them built their own sleds, employing a variety of original designs with the assistance of the local blacksmiths; and cotton stripping received its first extensive trial. By this time the improved gins were able to process the cotton, and it was reported that the mechanically

Hand operated cotton picker of 1855

stripped cotton actually produced a better sample than cotton that was hand-stripped because the additional handling before it reached the gin removed much of the dirt.

As a result of the extensive use of homemade contrivances in the Lubbock area during the 1926 season, several implement manufacturers became interested in developing cotton stripping machines and the following year a number of commercial strippers appeared on the market. Deere and Company, the leading firm, began in 1930 to manufacture both mule-drawn and tractor-mounted strippers and two years later had increased its output to 500 units per year.

Following the onset of the depression, however, interest in mechanical strippers languished on the part of farmers and manufacturers alike. With cotton selling at six cents a pound, wages for hand snapping at thirty cents per hundredweight, and cash extremely scarce, the market for labor-saving devices disappeared. The John Deere strippers were offered at $185 each on a contract calling for $25 on delivery and the balance at $5 for each bale harvested. Even so dealers eventually disposed of their remaining stock in 1941 at $15 each.[10]

In the meantime experimentation in stripper design was continued by the Texas Agricultural Experiment Station at College Station and at the Lubbock (High Plains) substation. Between 1927 and 1930 experiment station engineers worked out and tested the design for an improved stripper which incorporated a burr-extractor to clean the cotton as it was harvested.[11] This machine importantly influenced the design of most of the commercial strippers that were later built.

When labor shortages began to occur in the High Plains during World War II, farmers lost no time in adopting mechanical strippers. Deere and Company, which had sold practically no strippers from 1932 to 1942, was at last able to capitalize on its previous developmental work and became the chief supplier with an output of about 4,400 machines from 1946 to 1948. The contrast with depression conditions is indicated by the fact that in the latter year the company sold its machines at a delivered price of $905, exclusive of tractor. Several other manufacturers turned out machines in smaller quantities, and by 1955 it was estimated that there were over 23,000 strippers available for

[10] L. B. Neighbour, "Progress in the Mechanical Stripping of Cotton," *Summary of the Proceedings of the Second Annual Beltwide Cotton Mechanization Conference*, reprinted in *Acco Press*, 26: 8–9 (November, 1948).

[11] H. P. Smith and Others, *Mechanical Harvesting of Cotton as Affected by Varietal Characteristics and Other Factors*, Texas Agricultural Expriment Station, Bulletin 580 (College Station, December, 1939).

use on Southwestern farms.[12] Some of the newer strippers employ revolving fiber brushes instead of a metal stripper roll, following a design developed by the Oklahoma Agricultural Experiment Station in cooperation with the U. S. Department of Agriculture.[13]

Although cotton strippers have been tested in nearly all portions of the Cotton Belt, to date their effective use has been confined largely to the High Plains and Rolling Plains of Texas, Oklahoma, and New Mexico, where they seem best adapted to harvesting the type of cotton grown under the rather exceptional climatic conditions prevailing in those areas. About one-fifth of the Texas and Oklahoma crops were harvested by strippers in 1955.[14]

Spindle Pickers. Inventions in this group have included a multiplicity of cotton harvesters designed to pick the open cotton from the bolls by means of spindles, fingers, or prongs. The aim has been to construct a machine that could be used for repeated pickings during the season without material injury to the unopened bolls and the foliage necessary for continued growth. However, from the time of Rembert and Prescott's early invention in 1850 until the nineties very little progress was made in developing such a machine. About this time Angus Campbell, a Scottish pattern maker employed by the Deering Harvester Company, began to work out the essential mechanical principles for a machine that would pass a series of rotating spindles through a cotton plant and twist the loose fiber from the bolls. He started work in 1885 and took out his first patent in 1895.

Campbell showed great persistence and personal sacrifice in his efforts to perfect his machine over a period of thirty-seven years.[15] Each harvest season for over twenty years he used his vacation time to journey from his place of employment in Chicago to Texas, Louisiana, or Mississippi, where he would try out his latest model. In 1910, after trying out some fifty-five designs, he was so confident of success that he put five machines into the field in a widely publicized demonstration at Waxahatchie, Texas. Evidently his optimism was premature, since few farmers bought machines.

The same year Campbell joined forces with Theodore H. Price, who had independently devised a cotton harvester which he patented in 1904. The Price-Campbell cotton picker was patented in 1912 and underwent continuous testing and improvement until Campbell's death in 1922. The

[12] See table below.

[13] W. J. Oates, R. H. Witt, and W. S. Wood, "The Development of a Brush-type Cotton Harvester," *Agricultural Engineering*, 33: 135–36, 142 (March, 1952).

[14] See table below.

[15] For contemporary accounts of Campbell's activities see Page, *op. cit.*, 13,748–60; William Day, "Picking Cotton by Machine," *Scientific American*, 104: 231 (March 4, 1911); "A Machine that Is Philanthropist," *Outlook*, 97: 484–85 (March 4, 1911).

ESTIMATED NUMBER AND PERCENTAGE OF MECHANICAL COTTON HARVESTERS ON FARMS, AND PERCENTAGE OF COTTON MECHANICALLY HARVESTED, BY STATES, 1955–56 SEASON

	Spindle pickers[1]		Strippers[1]		Percentage of cotton harvested by machine[2]	
	No.	%	No.	%	Picked	Stripped
Southeast						
Alabama	198	1	41	*	2	*
Georgia	260	1	†		3	*
N. Carolina	65	*	†		2	
S. Carolina	300	2	†		2	
Midsouth						
Arkansas	2,600	14	63	*	25	*
Louisiana	1,035	6	†		28	
Mississippi	2,600	14	†		23	
Missouri	1,345	7	†		24	
Tennessee	255	1	†		2	
Southwest						
Oklahoma	39	*	2,805	12	*	20
Texas	1,547	9	19,524	85	3	21
West						
Arizona	2,100	11			39	
California	6,000	32			67	
New Mexico	300	2	689	3	16	4
TOTAL	18,644	100	23,122	100	17**	6**

† Estimate either not requested or insignificant number reported.

* Less than 0.5 percent.

** Percentage of total U. S. crop harvested by respective method.

[1] Estimates compiled by National Cotton Council of America, Memphis.

[2] U. S. Agricultural Marketing Service, "Charges for Ginning Cotton, Costs of Selected Services Incident to Marketing, and Related Information, Season 1955–56" (mimeographed, Washington, May, 1956), 2.

results, however, were never completely satisfactory. The self-propelled machine was heavy, complicated and expensive to build. It left too much cotton on the plant or knocked to the ground, in addition to which it injured the unripe bolls.

Notwithstanding these deficiencies, Campbell had done a valuable piece of work. The heart of his machine was an ingenious cam-actuated mechanism that positioned a battery of revolving barbed spindles in the cotton plant as the machine passed over it, and then removed the lint from the spindles by means of stationary

High-drum spindle cotton picker (International Harvester)

doffers. The Price-Campbell patents were taken over by the International Harvester Company in 1924, and although further testing and modification required another quarter-century, Campbell's basic ideas contributed importantly to the ultimate success of the first commercial cotton picker when it appeared in 1948.

Other inventors who attempted to perfect one version or another of the spindle cotton picker during the first quarter of the century included P. P. Haring of Goliad, Texas; B. Johnson of Temple, Texas; George R. Meyercord of Chicago; John F. Appleby (the widely known inventor of the self-knotting grain binder); and Hiram N. Berry of Greenville, Mississippi.[16] All of their machines attracted some notice at various times, but none was fully successful. Moreover, each inventor was confronted with the fact that because of the abundance of low-paid farm workers in the South, a mechanical cotton picker would have had to be overwhelmingly efficient to compete successfully with hand labor.

The longest continuous effort to devise a spindle picker was made by the International Harvester Company, which had evidenced interest in the problem from the time of its formation in 1902. Drawing on the experience of one of its predecessor companies, the Deering Harvester Company, the implement firm spent forty years in research and an estimated $5,250,000 before it was able to demonstrate in 1942 a spindle picker which it regarded as satisfactory for production.

Between 1924 and 1930 company engineers designed, built, and tested in the field seven distinct types of machines, beginning with an improved model of the Price-Campbell picker. They also tested literally hundreds of variations in the shape, size, and arrangement of spindles, doffers, and other essential parts. Recognizing the financial limitations of cotton growers, they sought to simplify the ponderous self-propelled picker and thus reduce its cost. The introduction of the all-purpose tractor in 1925 spurred them to devise a trail-model picker that could be attached to the tractor with a power-take-off arrangement and that would yet leave the tractor available for other purposes on the farm.

The company believed it was ready to introduce a trial machine on a limited basis in 1929 and the parts for twenty such machines were already completed when the financial collapse of that year abruptly altered the economic outlook. In the suc-

[16] After Hiram N. Berry's death his son, Charles R. Berry, continued to make improvements on his father's self-propelled picker. In 1943 Deere and Company bought the Berry patents and utilized them for a time in the development of its own spindle picker.

ceeding years of deepening depression conditions became less and less propitious for the introduction of a machine that would displace labor. Experimentation went on, but as Clarence R. Hagen, chief development engineer, remarked,

> Considerable opposition to mechanical picking was encountered in the field. Many cotton farmers were very skeptical, and sure that the cotton crop could not be mechanized. At the end of every harvest season we returned with a little more experience and a little more ridicule, for the average cotton grower believed firmly in the eternal supremacy of the Negro cotton picker.[17]

Yet it was in the midst of these depression years, when the acreage reduction program had contributed its share of displaced farm workers to the ranks of the already unemployed, that there appeared on the scene a mechanical harvester which seemed to meet the requirements for efficiency and labor saving that would enable it to compete successfully with human labor at extremely low wages. This was the cotton picker invented by John D. Rust and developed with the assistance of his brother Mack. The advent of this machine is interesting not only as a technical achievement but for the social dilemma it posed.

As children on a Texas cotton farm John and Mack Rust had picked cotton on their knees and had often discussed the possibility of inventing a machine to ease this form of human drudgery.[18] John Rust became an itinerant farm mechanic whose only formal training in engineering came from a correspondence course. While working for a combine manufacturer in Kansas City in 1924, he began to devise the principal mechanical features of his spindle cotton picker.

He was baffled, as many before had been, by the problem of removing the cotton from a spindle that was sufficiently barbed or serrated to twist the lint from the boll. According to his own account, it was while lying in bed one night in the spring of 1927 that he remembered how the morning dew had caused the cotton to cling to his fingers when he had picked cotton as a boy. He also recalled that his grandmother had always moistened the spindle of her spinning wheel in order to get the cotton to adhere.

"I jumped out of bed," he wrote, "and found some absorbent cotton and a nail for testing. I licked the nail and twirled it in the cotton and found that it would work."[19]

Rust thereupon returned to Texas, where he worked out the plans for an experimental model. It differed from previous pickers chiefly in the use of moistened smooth-wire spindles instead of roughened, barbed, or twisted spindles to secure aggressive picking action. It also employed a simplified endless belt mechanism to position the rows of spindles in the plants without raking and injuring the bolls. As the loaded spindles traveled on their circuit they were easily stripped clean by pairs of traveling steel ribbons. Although his machine subsequently underwent many modifications, the picking principle has been preserved in essentially its original form in machines based on Rust patents currently in use.

Rust's first patent was filed in January, 1928, and his first test model was completed that year. He was joined by his brother Mack, who had been employed in Schenectady as an electrical engineer, and together they embarked upon a series of trials and improvements. Although they had many discouragements with the performance of the early models and their financial backing remained meager, they aroused the interest of a number of supporters who shared the humanitarian outlook the Rust brothers were attempting to apply in the introduction of their invention.

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[17] Clarence R. Hagen, "Twenty-Five Years of Cotton Picker Development," *Agricultural Engineering*, 32: 594 (November, 1951).

[18] For short biographical accounts of the Rust brothers see Straus, *op. cit.*, 386–95; John Rust, "The Origin and Development of the Cotton Picker," *West Tennessee Historical Society Papers*, 7: 38–56 (1953); "Mr. Little Ol' Rust," *Fortune*, 46: 150–52 (December, 1952); and Victor Weybright, "Two Men and Their Machine," *Survey Graphic*, 25: 432–33 (July, 1936).

[19] Rust, *op. cit.*, 15.

The Rust harvester set a record when it picked a bale of cotton in one day during a test conducted at Waco, Texas, in 1931. Two years later an improved model picked five bales in a single day at the Delta Experiment Station at Stoneville, Mississippi. These tests received little publicity, however, and it was not until the publication of an article in national magazines in early 1935 that the invention and its social implications became the subject of intense public discussion.[20] Another public field trial was held under the auspices of the Delta Experiment Station on August 31, 1936. This time, under rather favorable conditions, the machine picked at the rate of four-fifths of a bale an hour—forty to fifty times the average rate for hand picking. There was considerable trash added to the lint and waste in the rows, but there was no doubt that the machine would pick cotton. The demonstration was widely reported in the national press, for it appeared to show conclusively the labor-saving potentialities of the picker and thereby to cast an ominous shadow on future employment prospects in the region.[21]

The Rust brothers were now faced with a perplexing set of problems. They were eager to see their machine put to use, but they did not wish to be responsible for encouraging the trend toward large-scale mechanized farming at the expense of small farm owners and sharecroppers. They were afraid widespread labor displacement would result if the sale of their machine were unrestricted.

For a time they refused to sell their shop-produced machines outright, but offered to lease them to farm operators who would agree to maintain minimum wages and maximum working hours on their farms, and who would give up the use of child labor. Few planters were willing to provide such guarantees in return for the doubtful advantages of mechanical harvesting.

The Rust brothers also encouraged the trial of their machines on various types of cooperative farms which sprang up during the depression, but the need to save labor was rarely the chief problem in these ventures. Hoping to make their picker available to small farmers, the inventors spent several years trying to devise a "Universal Pull Model" that could be drawn by a mule or a small tractor. These efforts proved to be technically impracticable.

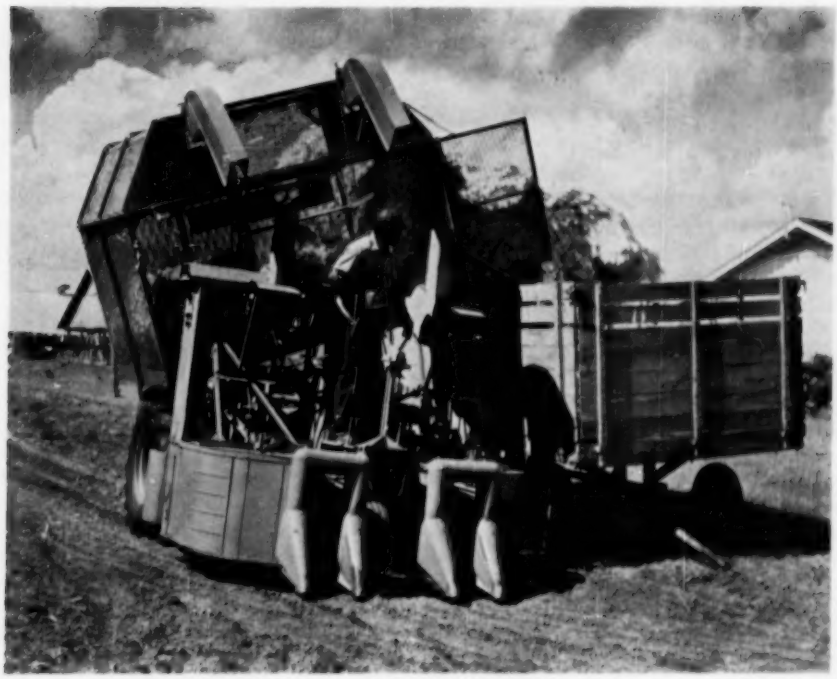
In 1937 the Rust brothers abandoned their leasing plan and announced that they would sell their two-row, self-propelled machines on the open market for $4800. At the same time they declared that they would restrict their share in the returns to an amount not to exceed ten times that of their lowest paid employee. A foundation was to be set up to apply any remaining personal profits to the assistance of displaced farmers and to promote cooperative farming. Nevertheless, the requisite capital was not forthcoming, and under the stringent conditions of World War II the shop tools had to be sold off to meet the company's debts. John and Mack Rust parted company at this time. Mack Rust went west with a few demonstration models to establish a custom picking business on the irrigated farms of Arizona and California.

In addition to his financial difficulties, John Rust had reached the dispiriting conclusion that his machine as it then existed lacked sufficient durability for general sale. Working models, while they would pick cotton when kept in continuous repair, tended to break down in the field when critical parts became worn. Under the encouragement of his wife, and with the requirements of mass production in view, he sat down to redesign the entire machine from the drafting board.

The Introduction of the Commercial Picker. It was at about this time that the long efforts of the International Harvester

[20] Oliver Carlson, "The Revolution in Cotton," *American Mercury*, 34: 129–36 (February, 1935); reprinted in condensed form in *Reader's Digest*, 26: 13–16 (March, 1935).

[21] "Cotton Picker Portents," *Business Week*, No. 366: 15 (September 5, 1936); "Cotton-gin Rival: Rust Cotton Picker," *Literary Digest*, 122: 45–46 (September 5, 1936); "Rust Brothers' Cotton Picker," *News-Week*, 8: 29 (September 5, 1936); "Picker Problems," *Time*, 28: 47–48, 50 (September 14, 1936).



Two-row cotton picker unloading (Allis-Chalmers)

Company to develop a commercially satisfactory picker came to fruition. Under the direction of A. W. Scarratt and C. R. Hagen the machine was radically redesigned to be mounted on a powerful high-clearance tractor with higher picking units to accommodate rank irrigated cotton. The tractor itself was operated backwards to permit the picking units to contact the plant before other parts of the machine could knock the cotton from the bolls. The machine incorporated 600 tapered, slightly barbed spindles, and had a moistening device to aid in picking and doffing.

The enormous departure of labor from southern farms during the war years led to increasing reports of labor shortages and for the first time opened the way for serious consideration of labor-saving machinery in the cotton region. To meet the emergency, Fowler McCormick, president of the International Harvester Company, announced in 1942 that his company regarded its cotton picker as practicable for use and offered to begin production if materials allocations could be made. Wartime priorities rendered this temporarily impossible, but the announcement spurred other manufacturers to get into the race to produce the first commercial cotton picker.[22]

Deere and Company acquired the Berry patents at this time, and the Allis-Chalmers Manufacturing Company negotiated an agreement with John Rust to construct machines incorporating his new designs on a non-exclusive basis. In the confused postwar adjustment period, however, none of the companies was able to get into quantity production. There was still considerable doubt that cotton growers were ready

[22] "Cotton Harvester; International Harvester's Machine," *Newsweek*, 20: 68 (December 7, 1942); "Six-bale Picker," *Business Week*, No. 743: 69–70, 72 (November 27, 1943); "Race for Pickers," *Business Week*, No. 748: 61–62 (January 1, 1944).

to accept complicated, expensive machines to harvest their crop when labor was drifting back to the farms. It was increasingly clear that an important secondary bottleneck—the hand labor needed for weeding and thinning—would also have to be eliminated before growers could rely on a completely mechanized crop.

In the face of these uncertainties, the International Harvester Company under the leadership of R. P. Messenger, an executive vice president, proceeded with the construction of a new plant in Memphis. In 1948 this plant turned out over 1100 machines, priced at $7600 when mounted on a large model M tractor. Professor Gilbert C. Fite commented, "This is an astronomical sum for over half of the cotton growers who produce less than four bales of cotton a year and farm less than thirty acres of cropland."[23]

Nevertheless, a commercial market for the machines was developing among the larger growers and custom operators. By 1952 the International Harvester plant had produced more than 8000 machines, including both high- and low-drum models. In 1956 it added a new two-row picker, also available in sizes suited to different growths of cotton. In the meantime the Allis-Chalmers Company acquired a new plant at Gadsden, Alabama, and turned out 1200 pickers between 1949 and 1952. These included a two-row machine and a small single-unit attachment that was priced under $2,500 (exclusive of tractor) to bring it within the reach of a greatly increased number of users.

During the same period Deere and Company produced about 750 one- and two-row pickers, and a new entrant to the field, Ben Pearson, Inc., at Pine Bluff, Arkansas, built 1500 one- and two-row machines based on Rust patents. In addition, this company is now constructing picking attachments which are mounted on the respective tractors of the J. I. Case Company and Massey-Harris-Ferguson, Inc., and the assembled machines are being marketed by those companies. Versions of Rust cotton pickers are thus being sold by four companies. Until his death in 1954 John Rust continued to make improvements in his invention, and he was at last able to realize his goal of an educational and charitable foundation financed by patent royalties.

The growing acceptance of the cotton harvester as a successful farm tool, although it has not yet been widely adopted in some portions of the Cotton Belt, is clearly indicated in the accompanying table. It is estimated that over 18,000 spindle pickers and 23,000 strippers were available for the 1955–56 harvest, most of them concentrated in the western cotton states and the Mississippi valley. In other areas the predominantly small farms, broken terrain, and relative abundance of hand labor still pose obstacles, but research is under way to adapt the machines for more effective use under such conditions.

The introduction of mechanical harvesting has been vastly facilitated by a large variety of complementary inventions and techniques which have emerged in the past few years, and which have been promoted by the National Cotton Council through its annual beltwide mechanization conferences. The weeding and thinning problem is being met by the application of pre- and post-emergence chemical herbicides, flame weeders, and newly designed mechanical choppers and cultivators. Plant breeders are developing varieties suited to mechanical harvesting. Chemical defoliants are used to remove the leaves before harvest, and improved ginning machinery aids in preserving clean, high quality lint. Taken together, these advances constitute a technological revolution, the profound consequences of which are only beginning to be appreciated.

[23] Gilbert C. Fite, "Recent Progress in the Mechanization of Cotton Production in the United States," *Agricultural History*, 24: 19–28 (January, 1950).

The Cincinnatus Image in Presidential Politics

W. BURLIE BROWN

One of the oldest and most persistent themes in the history of presidential politics is the efforts of political propagandists to cast their candidate in the role of a Cincinnatus called from the plow to save the state. From Andrew Jackson to Dwight D. Eisenhower, the voter has been assured that almost every major party candidate was a son of the soil.

To dismiss this fact as merely an appeal to the farm vote would be a decided oversimplification. The evokers of the Cincinnatus image are aware that their appeal is far wider than a simple identification with a portion, however large it was and still is, of the voting public. They are convinced, and it is believed, with good reason that the appeal of the sturdy yeoman, the simple republican farmer, as a symbol of honesty, integrity, instinctive democracy, and almost mystical capacity for statesmanship is deeply rooted in the fiber of the American mind and constitutes therefore a continuing political asset.

No better source for tracing the persistence of this Cincinnatus image over the years exists than the campaign biographies of the presidential candidates. Every four years from 1824 to the present, there has issued from the presses of the nation an unbroken stream of "campaign lives" of presidential hopefuls. Averaging, as they do, three or four hundred pages, they provide more detail of the life story of the candidates than is available to the voter from any other source. Neither a tissue of lies nor scholarly productions, these campaign biographies are adroit pieces of political propaganda. In brief, their function is to fashion out of the events of the candidate's real life a biography of the ideal citizen of the Republic—a man every voter either believes or wishes himself to be.

Almost invariably, one episode of this life story of the ideal citizen is concerned with his days on the farm. Until recently it has not been difficult to establish genuine farm origins for nearly all presidential candidates. Since the population of the nation was overwhelmingly rural before the Civil War and, until 1920, remained predominantly rural, the odds for a barefoot boyhood have been on the side of the candidate. Indeed, prior to the Civil War, campaign biographers took it for granted that the youth of their hero had been spent in rural occupation. Only rarely does one come across even brief mentions of these candidates' early agrarian pursuits. When they do occur, they are simple, straightforward statements like "Zachary Taylor was reared by his father to his own profession—that of a farmer; and until his majority, was practically engaged in it. . . ."[1] William Dean Howells, campaign biographer of Lincoln in 1860, was not only similarly laconic but downright heretical in the handling of young Abe's farm life. "The work done," he wrote, "was in the course of farm labor, and went to the development of Mr. Lincoln's muscle. Otherwise it is difficult to perceive how it affected his career."[2]

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[1] J. Reese Fry and Robert T. Conrad, *A Life of Zachary Taylor; comprising a narrative of Events connected with his Professional Career . . . and Authentic Incidents of his Early Years* (Philadelphia, 1848), 17. The emphasis that his partisans placed on Henry Clay as "the Mill Boy of the Slashes" was not so much a matter of his farming origins as it was a "rags to riches story." The Whig hard cider campaign of 1840 was directed toward exploiting the alleged present condition of Harrison as a simple republican farmer. Indeed, no one of the five campaign biographies of William Henry Harrison that I have examined attempts to make him a barefoot farm boy; on the contrary they all play up the glorious Harrison ancestry.

[2] William Dean Howells, *Life of Abraham Lincoln* (Springfield, Illinois, 1938), 24. This is a reprinting of a copy of the 1860 Foster and Follett edition that was corrected by Lincoln himself. Lincoln's marginal corrections were reproduced. For an equally casual treatment of his 1860 opponent's farm origins see James W. Sheahan, *The Life of Stephen A. Douglas* (New York, 1860), 3.

But after the Civil War the treatment of the candidate's roots in the soil becomes increasingly lengthy and increasingly less casual. Grant's biographers treat not only his youth on the farm but also his brief return to farming after his resignation from the army in 1854. "He built a house of hewn logs, working on the structure with his own hands," writes one of them, "thus drawing upon the experience he had acquired in his youth. . . . He was not above his business, nor in any sense one of those dandy agriculturists called 'gentlemen farmers.' . . ."[3] This dig at 'gentlemen farmers' was, of course, directed at his Democratic opponent, Horatio Seymour, who ran a large experimental farm and who was being advertised by his partisans as the "proudest specimen of American yeomanry."[4]

Certainly by 1876 there is a clearly discernible sensitivity to the necessity of watering these roots in the soil. Irked by the manner in which his "candidate has been painfully contrasted with the agricultural simplicity of Mr. Tilden," the biographer of Hayes felt constrained to relate a rather pathetic little tale of how young Rutherford's mother felt impelled to keep him from going to Yale because the rusticity of his dress and manner might cause him embarrassment.[5]

One could follow Garfield, Ben Harrison, and Bryan through their round of youthful chores on the farm, but it would accomplish little to pile up the evidence given by their biographers to establish them as genuine "country boys."[6] Most of it is not strained; their farm origins were genuine enough. From the 1920's to the present, however, the treatment of the candidates' early lives on the farm becomes very nostalgic—the scenes of plowing, planting, and chores come to read like second-rate pastoral verse—and invites the suspicion that more and more is being written about less and less. The scenes of Herbert Hoover's boyhood on an Iowa farm are so replete with the stock phrases for conjuring up bucolic idyls that one can almost smell "the meadow sweet with hay."[7] But Republicans are no better at this conjuring than Democrats. In 1948, the voter was permitted "to ride along on the Emerson gang plow, [with Harry Truman] holding the levers with his hardened hands, while the earth curled in a black, sweetly fresh ribbon at the side of the shining steel moldboard."[8]

One can almost sense a conscious grasping at straws and this strain sometimes leads to slightly ludicrous attempts to give a ring of authenticity by supplying detail. Thus the voter was assured that Calvin Coolidge "could get an exceptional

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[3] Oliver Optic [pseudonym, W. T. Adams], *Our Standard-Bearer; or The Life of General Ulysses S. Grant* (Boston, 1868), 80. See also Henry C. Deming, *The Life of Ulysses S. Grant, General, United States Army* (Hartford, 1868), 95.

[4] David G. Croly, *Seymour and Blair, their Lives and Services* (New York, 1868), 16, 70. In 1872, Grant defeated another experimental farmer. Horace Greeley's past and present as a farmer were duly exploited by his biographer. See L. U. Reavis, *A Representative Life of Horace Greeley* (New York, 1872), 24, 25, 112, 469, 470-474.

[5] William Dean Howells, *Sketch of the Life and Character of Rutherford B. Hayes* (Boston, 1876), 14.

[6] General James S. Brisbin, *From the Tow-Path to the White House. The Early Life and Public Career of James A. Garfield* (Philadelphia, 1880), 31, 35, 40. General Lew Wallace, *Life of General Ben Harrison* (Philadelphia, 1888), 50, 57. Henry Davenport Northrop, *The Life and Public Services of Gen. Benj. Harrison* (Philadelphia, 1888), 213. Harvey E. Newbranch, *William Jennings Bryan: A Concise but Complete Story of his Life and Services* (Lincoln, Nebraska, 1900), 13-14, 175.

[7] Will Irwin, *Herbert Hoover, A Reminiscent Biography* (New York, 1928), 12-13, 23, 24. He was after all running against the first indisputable "city-slicker." It is interesting to note that as late as 1920 the drudgery of farm life was still conceded in campaign biographies. For young James M. Cox farm life was "largely all work and no play . . . from early morning until late at night . . ." Roger W. Babson, *Cox—the Man* (New York, 1920), 2.

[8] Frank McNaughton and Walter Hehmeyer, *This Man Truman* (New York, 1945), 25. Reissued for the campaign in a new edition under the title of *Harry Truman, President* (New York, 1948). Chapter III, "The Farmer," even outdoes the Hoover biography.

amount of sap out of a maple tree."[9] And Harry Truman, his biographers proudly record, was "an expert in the surgical art of castrating pigs."[10] But doubtless the voter's credulity was most severely wrenched by protestations like this one: Franklin Roosevelt was being interviewed, reported his biographer, and was asked about his estate. "'It's not an estate,' replied F. D. with an expression of annoyance. 'It's a farm. . . . Must our farm be called an estate merely because I'm governor, or because it's been in the family a long time, or because there are flower gardens there? . . . Call it by its right name—a farm. I don't like estates and I *do* like farms. . . .' A farm where thousands of trees grew. A place of corn fields. A place of rye fields and of chickens and cows. Potato patches, barnyards. . . . A place where F. D. himself, in years before the infantile paralysis, had gone to the fields and kept close to the realities of the soil and the life it nurtured."[11]

Even more important than the candidate's farm origins, judging by the emphasis given by the biographies, and much more difficult to establish is the candidate's more recent connection with the soil. Ideally the nomination should find him seated beneath his fig and vine so that the Cincinnatus image may be applied more literally. This has been made at least tenable by the long standing practice of successful Americans, with or without farm backgrounds, of buying and operating a farm after making their fortunes in the city. Thus it becomes possible for the campaign biographer to take lyric delight in fashioning such romantic pastoral evocations as this one: "Horatio Seymour, although a man of the most brilliant parts—a profound scholar, a magnificent orator, a wise, sagacious and experienced statesman—is only a plain farmer after all. From the peaceful and pleasant occupations of rural life, he has been called by the unanimous voice of the great party of the people to become their standard-bearer . . . he stands before the nation to-day as the proudest specimen of American yeomanry the world has ever looked upon. In the quiet retirement of his country home, he has, while earnestly devoting himself to the tilling of the soil, been giving the best energies of his comprehensive mind to national affairs."[12] And, of course, it is with great reluctance that the candidate is persuaded to leave the plow in the furrow: "Like Cincinnatus the Roman statesman, Hayes preferred his fields of wheat, his droves of cattle and swine, to the loftiest and easiest position which the nation could bestow, and left them only when there was an unmistakable need for him in the councils of state."[13]

That entirely superfluous committee that calls on a candidate to announce to him that he has received the nomination might have found Greeley doing the chores, Garfield "working in the hay-field with his boys," Bryan "nursing an ailing pig back to health," Cox "happy . . . amongst the animals," Willkie tramping over his

[10] McNaughton and Hehmeyer, *Truman*, 29.

[11] Leland M. Ross and Allen W. Grobin, *This Democratic Roosevelt, The Life Story of "F. D.": An Authentic Biography* (New York, 1932), 207-208. In 1908, even the biographers of Bryan had to be careful with this distinction between a farm and an estate. Albert L. Gale and George W. Kline, *Bryan the Man: The Great Commoner at Close Range* (St. Louis, 1908), 88. On the other hand, the small size of the "farm" has sometimes proved a source of embarrassment in establishing the candidate's early roots in the soil. John W. Davis' folks lived in town but the voter was assured that he still had to do the chores, "the cows had to be driven from the pasture, the garden had to be weeded, there was wood to be cut and water to be carried." Theodore A. Huntley, *The Life of John W. Davis* (New York, 1924), 41. For a similar handling of the Eisenhower truck garden in Abilene (three or four acres) see Kenneth S. Davis, *Soldier of Democracy: A Biography of Dwight Eisenhower* (New York, 1945 [reissued for the campaign in 1952], 50-54.

[12] Croly, *Seymour and Blair*, 70.

[13] Russell Herman Conwell, *Life and Public Services of Gov. Rutherford B. Hayes* (Boston, 1876), 203.

[9] Robert Archery Woods, *The Preparation of Calvin Coolidge: An Interpretation* (Boston, 1924), 80.

acres, or even the urbane Mr. Dewey among his cabbages at Pawling.[14]

One and all, they are almost literally dragged from their rural retreats. The nobility and self-sacrificing patriotism that prompts the candidate to abandon the "sweets of rural occupation" to save the state is, of course, powerfully reinforced by the example of Washington—in Lord Byron's phrase: "The first, the best, the Cincinnatus of the West." And their biographers do not fail to point out the remarkable coincidence that the candidates, *too*, have found real happiness only amid the pursuits of husbandry.[15]

The Cincinnatus image is, of course, only the vehicle, a sort of cultural cliché, through which the appeal to a deeply rooted group of ideas concerning the values inherent in agrarian pursuits is made. Since campaign biographies, quite naturally, are neither subtle nor learned, these values are also spelled out. There is, for example, a constant statement of the time-honored belief that agriculture is "the greatest source of national wealth and happiness."[16] Changes are rung on the Jeffersonian faith in the yeomanry as the backbone of political democracy—"that useful class, which has since given the spring to the glory and prosperity of the state."[17] They form an anchor of stability for the nation.[18] For living in rural isolation, away from the teeming hustle of cities "men think. They take time to think."[19] And the simplicity of the agrarian life is more in keeping with the Spartan virtue of the early Republic "than commerce, which builds up luxury, and fosters aristocratic classes."[20]

While it is, of course, obvious to biographers that the pursuits of husbandry provide the candidate with physical health and vigor, this is but a minor consideration.[21] Of much greater import is their acceptance of the almost mystical idea

[14] Reavis, *Greeley*, 112; Brisbin, *Garfield*, 321, 322, 348; Gale and Kline, *Bryan*, 18; Babson, *Cox*, 38; Stanley Walker, *This is Wendell Willkie* (New York, 1940), 8-9; Stanley Walker, *Dewey, An American of This Century* (New York, 1944), 177-178. There is a certain amount of self-consciousness in some of these recent biographies; thus Walker says in his campaign life of Dewey: "He makes no pretense, however, of being an authentic dirt farmer; he has never even had his picture taken running a tractor or pitching hay, although the temptation might have been strong." *Ibid.*, 178. (This same biography incidentally includes a picture of Tom Dewey as a farm boy in overalls, one of him sitting on a rail fance talking with the old farmer for whom he worked as a boy, and one of him and his children among the cabbages at Pawling). See also Willis Thornton, *The Life of Alfred M. Landon* (New York, 1936), 8. John Bartlow Martin, *Adlai Stevenson* (New York, 1952), 52.

[15] See for example *Biographical Sketch of the Life of Andrew Jackson* (Hudson, New York, 1828), 11, 41, 50; Reavis, *Greeley*, 112; Brisbin, *Garfield*, 321; Gale and Kline, *Bryan*, 12, 88; Babson, *Cox*, 38.

[16] George Denison Prentice, *Biography of Henry Clay* (Hartford, 1831), 49. See also Babson, *Cox*, 107; Richard B. Fowler, *Deeds Not Deficits: The Story of Alfred M. Landon* (n.p., n.d. [1936]), 88.

[17] James Hall, *A Memoir of the Public Services of William Henry Harrison of Ohio* (Philadelphia, 1836), 63. But see Richard Hildreth, *The People's Presidential Candidate; or The Life of William Henry Harrison of Ohio* (Boston, 1840), 25 for the best discussion of the Jeffersonian freehold concept—this from the pen of "the Federalist historian"! See also R. G. Horton, *The Life and Public Services of James Buchanan* (New York, 1856), 66.

[18] *The Life and Public Services of the Hon. James Knox Polk* (Baltimore, 1844), 10. "They are the body of men, among whom you may expect to find in an eminent degree that virtue without which your American institutions could not continue to exist." Horton, *Buchanan*, 66.

[19] Ross and Grobin, *Franklin Roosevelt*, 208. See also Croly, *Seymour and Blair*, 69-70; Gale and Kline, *Bryan*, 88. Truman was quoted as saying "Riding one of those plows all day, day after day, gives one time to think. I've settled all the ills of mankind in one way or another riding along, seeing that each animal pulled his part of the load." McNaughton and Hehmeyer, *Truman*, 25.

[20] Reavis, *Greeley*, x. See also Howells, *Hayes*, 14. And, of course, as one approaches the present the memory of the Golden Age of the Republic grows mellower and the usual sigh for the "good old days" is heard: "Judge Parker is a product of that plain, faithful, toilsome, frugal, substantial country life of old, examples of which have grown so rare that they are now to be specially remarked." Colonel John R. Grady, *The Lives and Public Services of Parker and Davis* (Philadelphia, 1904), 53. See also Walter Friar Dexter, *Herbert Hoover and American Individualism* (New York, 1932), 8-12.

[21] Fry and Conrad, *Taylor*, 17; Newbranch, *Bryan*, 13-14.

that this proximity to nature engenders a sort of moral or spiritual health. "The best elements of our American life have always come up from the hardy, vigorous stratum that was nearest to the soil and in some ways dependent on it."[22] It is productive of unfogged intelligence: "from the healthy surroundings and disciplines of pastoral pursuits may emerge the most vigorous and brilliant minds. . . ."[23]

In short, it is not only natural but highly desirable that, as one campaign biographer put it, "Our bare-footed ploughboys rise to ride the Steed of State, and wield the rod of republican empire."[24] Their preparation has been in the best tradition of Cincinnatus, Cromwell, and Washington. Can it be doubted, asked a biographer of Coolidge in 1924, that "such cumulative experience in meeting and overcoming all the farmer's problems is sufficient to develop capacity for statesmanship."[25]

These astute political propagandists have had ample reason to believe that few will doubt, for the universal esteem that has been traditionally accorded the pursuits of the agricultural life is very old. Hesiod, Aristotle, Zenophon, Cato, Cicero, Horace, and Virgil, to mention but a few of the ancients, extolled the virtues of a life devoted to the tilling of the soil. In this agrarian mystique, firmly established in Western culture at latest by the time of Augustus, virtue radiated up through the plow handles, infusing the plowman with honor, manliness, noble thought, patriotism, civic responsibility, and all the immemorial virtues. It persisted through the Middle Ages, gathering strength from scriptural sanction and from other Christian sources, and bloomed mightily in the Renaissance with the revival of classical learning.[26] After a brief waning in the sixteenth and seventeenth centuries, the praise of husbandry burst forth with tremendous new vigor in the eighteenth century, replete with intensified mystical and romantic overtones.[27]

Exploring the persistent phenomenon, one scholar has offered a simple "commonsense" explanation: "Much of this writing, all of it, perhaps, was an idealization of the circumstances in which men had lived and labored throughout most of their history. For thousands of years agriculture had been the principal means of livelihood. Even today it employs two-thirds of the human race. Only for a brief moment in history and in a few places on earth have men known anything but an agrarian environment. Since agriculture was the basic economic enterprise, the traditional calling of mankind, it is not surprising to find it sanctioned by religion, by secular idealism, by whatever forms in which the human propensity for rationalization found expression. Almost all men were farmers, therefore to think well of man was to think well of farming."[28]

This ancient tradition, then, came to America as a part of the "cultural baggage" of the settlers. Transplanted in the virgin soil of the New World it throve mightily. The immensity of the new land area offered seemingly limitless opportunity for agriculturists, and from the very beginning the promotional literature boosting settlement fairly wallows in all the old, extravagant praise of the land and the agrarian life.[29] But with the coming

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[22] General Benjamin La Fevre, *Biographies of S. Grover Cleveland, the Democratic Candidate for President and Thomas A. Hendricks . . .* (Chicago, 1884), 28.

[23] Reavis, *Greeley*, 24.

[24] Deming, *Grant*, 96.

[25] Woods, *Coolidge*, 81.

[26] The best work of tracing the early history of these ideas has been done by Paul H. Johnstone. For a survey from ancient Greece through the Renaissance see his article, "In Praise of Husbandry," *Agricultural History*, 11: 80-95 (April, 1937).

[27] Paul H. Johnstone, "Turnips and Romanticism," *Agricultural History*, 12: 224-55 (July, 1938).

[28] A. Whitney Griswold, *Farming and Democracy* (New York, 1948), 20.

[29] Chester E. Eisinger, "Land and Loyalty: Literary Expressions of Agrarian Nationalism in the Seventeenth and Eighteenth Centuries," *American Literature*, 21: 160-78 (May, 1949). The same themes, without the promotional aspect, occur in publications designed primarily for the farmer. See Chester E. Eisinger, "The Farmer in the Eighteenth Century Almanac," *Agricultural History*, 28: 107-12 (July, 1954).

of the Revolution a new element of belief enters the agrarian creed. This new article of faith asserted that the farmer was the backbone of political democracy. Briefly, the rationale of the belief rests upon the assumption that democracy requires free men capable of making free decisions. This condition would obtain in America as long as there remained an abundance of land, making it relatively easy for men to acquire a freehold, because possession of a freehold meant economic independence and, in turn, political independence.

This attribute of the sturdy yeoman rapidly rose to the top of the list: "The archetypal American—the rugged, individualistic, self-sustaining, independent farmer—thus becomes the object of a chorus of chauvinistic [nowhere but in America could he be found] praise. This figure sent shivers of ecstasy up and down the spines of his articulate countrymen, the famous and the unknown alike."[30]

Few among his admirers could have been more ardent than Thomas Jefferson. "No one believed so implicitly as he in a causal connection between the occupation of farming and the political system of democracy, and no one, before or since his time, has given that belief a greater impetus among his countrymen."[31] It would serve no useful purpose to present the many choice quotations from Jefferson lavishing praise on the yeomanry—this has been done, with monotonous regularity, by the agrarian devotees of their patron saint. It is also a sterile thing to badger the oft-repeated points that Jefferson amended this view: that he was no doctrinaire; that having lived long and written much, the corpus of his work contains many contradictions—the fact remains that in the mind of the public he has enduringly remained the foremost exemplar of agrarian democracy.[32]

This complex of ideas that clusters around the image of the sturdy yeoman has had a remarkable vitality in America. The existence of the vast area of virgin land that beckoned the American ever westward through most of our history provided opportunity for the continuous renewal of the agrarian tradition. And like Antaeus, it gathered strength with each new contact with the earth. Each successive agricultural frontier became in turn the "garden of the world," in the American imagination, and destined to produce a race of cultivators vigorous of mind, healthy of body, and virtuous in character who would provide the moral patriotic fiber for the backbone of the nation. The progress of the agrarian myth across the continent from its beginnings in America up to the close of the frontier has been traced by Henry Nash Smith in one of the most perceptive studies of American intellectual history yet to appear.[33]

The myth did not die with the passing of the frontier. In 1926, the National Industrial Conference Board declared: "Our farmers are more than a class of our population. Farming is more than an industry. The significance of agriculture in the life of the nation is far deeper than this. It touches something vital and fundamental in the national existence. It involves the national security, the racial character, the economic welfare and the social progress of our people."[34] This same Board together with the National Chamber of Commerce appointed a Business Men's Com-

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[30] Eisinger, "Land and Loyalty," *American Literature*, 21: 166. For a fuller analysis of this "freehold concept" see Chester E. Eisinger, "The Freehold Concept in Eighteenth-Century American Letters," *William and Mary Quarterly*, 3rd. ser., 4: 42-59 (January, 1947); and Griswold, *Farming and Democracy*, 3-46, *passim*.

[31] Griswold, *Farming and Democracy*, 19. See also A. Whitney Griswold, "The Agrarian Democracy of Thomas Jefferson," *American Political Science Review*, 40: 657-81 (August, 1946).

[32] Griswold's chapter entitled "The Jeffersonian Ideal" indicates the direction and scope of scholarship on these points. *Farming and Democracy*, 18-46. For a disposal of the claims of the supporters of John Taylor of Caroline as "the philosopher of agrarianism," see *ibid.*, 23-24.

[33] *Virgin Land: The American West as Symbol and Myth* (Cambridge, 1950). See especially Book Three, "The Garden of the World." The focus here is upon the ideal, or myth, which, of course, was but very imperfectly mirrored in reality.

[34] *The Agricultural Problem in the United States*, quoted in Griswold, *Farming and Democracy*, 148.

mission on Agriculture, made up of prominent railroad executives, bankers, and manufacturers—a most unagrarian group. The following year this Commission issued a report that spoke of farming as not just a business but a way of life and the farmer as possessed of "a proud heritage, last bulwark of true democracy."[35]

There is then ample evidence that the praises of husbandry found in the campaign biographies echo deeply ingrained ideas that have existed in America from the beginning. Moreover, the belief that farming as a way of life in some mysterious fashion implants in men's characters stability, morality, responsibility, patriotic devotion, and all the sturdy, simple, republican virtues has not been limited to the agricultural population but has had wide currency. It is hardly surprising to find that political propagandists from Jackson to Eisenhower have not neglected to identify their candidates with this rich lode of precious belief.

[35] *The Condititon of Agriculture in the United States and Measures for Its Improvement* (New York and Washington, 1927), 18. The Commission uses some surprisingly Jeffersonian language in its plea for the preservation of the "proud role of the independent proprietor." It even rings changes on the notion of the farm as the citadel of virtue in contrast to "the temptation of ease and amusement, worst enemies of urban life." *Ibid.*, 17, 18. For a continuation of this sort of thing, through the New Deal and down to 1948, see Griswold, *Farming and Democracy*, Chapter V.

T. P. Gore and Agricultural Legislation

MONROE BILLINGTON

When Oklahoma was admitted to the Union in 1907, totally blind Thomas P. Gore was sent as a Democrat to speak for the new state in the United States Senate. A former member of the Farmers' Alliance in Mississippi and the Populist Party in eastern Texas, Gore was to serve continuously in the Senate until 1921. Defeated for re-election in 1920, he spent ten years out of public life, after which he returned to Capitol Hill for a final term which ended in 1937. Representing an agrarian constituency Gore made significant contributions to agricultural legislation. This study seeks to trace and evaluate that record.

Gore's first committee assignments did not place him on the Agriculture and Forestry Committee, but the newly-elected senator soon requested and was granted permission to fill a vacancy in that important group.[1] As a minority member of that committee from 1908 to 1913, Gore kept in contact with agricultural needs and conditions, although his positive contributions were meager. Because of their victories in the elections in 1912, the Democrats were able to organize the Senate the following spring; consequently, Gore was raised to the chairmanship of the Agriculture and Forestry Committee. For the next six years he had a hand in virtually every piece of agricultural legislation receiving the attention of the Senate, his major responsibility centering around the annual agricultural appropriation bills allocating money for the Department of Agriculture. Working behind the scenes on many other pieces of legislation, Gore found himself the Senate floor leader when these appropriations were being considered. Explaining, defending, amending, discussing, and voting on them, Gore was tireless in his efforts to secure adequate funds for the Department of Agriculture for each fiscal year. He presided over scores of hearings in this regard. A few representative subjects have been chosen from the multitudinous details to which Gore gave tedious attention to exemplify

[1] *Congressional Record*, 60 Cong., 1 sess., 3423.

his outlook in the field of agricultural legislation.

Gore was primarily responsible for setting aside $10,000 to maintain automobiles, motorboats, and motorcycles to serve the Department of Agriculture for the year 1914–15.[2] Many senators had misgivings about the value of motor vehicles, one stating he had never ridden in a horseless carriage and never planned to. Gore was persistent in his efforts despite the number who preferred mules and horses over mechanical vehicles in government service and the amendment was accepted, ultimately becoming a part of the enacted bill.[3]

Gore gave considerable attention to the vexing problem of the spread of the foot-and-mouth disease. In December, 1914, Secretary of Agriculture David F. Houston urged the Agriculture Committee to seek an emergency appropriation to cover the expenses incurred in the eradication of a new outbreak of this disease throughout the country. "While up to the present we have had sufficient funds to meet the expenses actually incurred," Houston wrote, "these funds will not last much longer, and it would be disastrous to delay or to interrupt the work."[4] Accordingly, Gore introduced and rushed through the Senate a bill providing $2,500,000 for the emergency. Insisting that the bill was of the highest urgency, he asked that there be no debate on it. The Senate cut the appropriation to $1,000,000 and sent it to the House. When the bill died in a House committee, Gore attached an amendment to the next agricultural bill putting aside for the control of the foot-and-mouth disease $2,500,000 to be used in the event of any future outbreak of that disease.[5] Other animal diseases, including Texas fever and hog cholera, also received the senator's consideration. In addition, the problem of halting grasshopper and boll weevil plagues occupied his attention.

As chairman of the Agriculture Committee Gore did not forget that he came from a highly rural state. He attempted over a period of several years to improve farming conditions near his home in Oklahoma. At his suggestion a field station was established in 1915 at Lawton for the study of dry land farming practices, and he later explored the possibilities of a system of irrigation for the area.[6]

Gore was also interested in bills providing for the uniform grading of grain. When a measure proposing federal inspection of the grading of grain failed to pass the Senate, Gore offered a substitute prepared under the direction of the Department of Agriculture which would establish uniformity among the grades. With the government simply supervising the enforcement of the grading standards, this measure left to the various states the right to maintain the inspection machinery, but the substitute met the same fate as the original bill.[7] Another measure dealing with the same subject passed the lower house, and Gore's committee recommended its passage in the Senate, but other matters were more pressing and this bill also died.

In the fall of 1914 when a cotton surplus existed in the United States, a number of plans to relieve the distressed cotton growers of the nation were advanced in Congress. After several of the proposals had been rejected, Gore introduced in the Senate a bill to establish a cotton-credit guaranty system which he felt would bring a solution to the problem.[8] He suggested

[2] *Ibid.*, 63 Cong., 2 sess., 8744.

[3] *U. S. Statutes at Large*, 38: 442.

[4] Houston to Gore, December 9, 1914, quoted in *Senate Reports*, No. 831 (ser. no. 6762), 63 Cong., 3 sess.

[5] *Senate Reports*, No. 987 (ser. no. 6762), 63 Cong., 3 sess.; *U. S. Statutes at Large*, 38: 1115.

[6] Houston to Gore, December 21, 1914, and June 29, 1915, D. F. Houston Letterbooks, Department of Agriculture Papers, National Archives.

[7] *Congressional Record*, 63 Cong., 2 sess., 7557.

[8] *Ibid.*, 16814–16816.

that the credit of the Federal Government be pledged to assist in moving the 1914 cotton crop. Private banks, after making satisfactory financial showing to the Secretary of the Treasury, would be permitted to extend to the cotton growers credit in the form of certified cotton-credit checks guaranteed by the United States Government. The farmer could then hold his cotton in a warehouse until the market price became satisfactory; he might use the certificates in the place of legal tender until the cotton was sold. Despite Gore's confidence in the plan, many of his colleagues were not interested in it, and support was not forthcoming.

Gore had a minor part in the passage of the Smith-Lever agricultural extension bill of 1914 which created a generous grant-in-aid system in behalf of agricultural education through university and governmental extension work in rural areas. He defended the farm demonstration program of the government's extension work when it was attacked by northern senators. When Porter J. McCumber criticized the demonstration work as a sop, Gore reminded the North Dakota senator that many southern farmers, especially Negroes, were not as far advanced as the northern farmers. Many parts of Texas, Mississippi, and Louisiana had been practically revolutionized through government-sponsored demonstration work, he said, and when it was suggested that the work be discontinued in Oklahoma, a storm of protest had been raised.[9] The Smith-Hughes Act which further subsidized vocational and agricultural education and created a federal board to administer the grant-in-aid system also had Gore's approval.[10]

During the first decade of the twentieth century it had become apparent that the commercial banking system on which the farmer depended was not adapted to his needs. The financial machinery enjoyed by other classes of borrowers was inadequate for the farmer, and the farmer's rate of interest was higher than the rate paid by railroads, municipalities, or industrial corporations.[11] All three major parties endorsed rural credit reform in the national conventions of 1912, and President Wilson expressed the need for this financial reform in his inaugural address. Agitation for the scheme that would reduce the farmer's rate of interest thus grew rapidly after the Democrats took office in 1913.

Gore expressed his support of the theory of long-term credits at low interest rates for the farmers and set about to make that theory a reality. Securing an amendment to the 1914 agricultural appropriation bill approved on March 4, 1913, Gore made possible the creation of the United States Rural Credit Commission which was given the power "to investigate and study in European countries cooperative land-mortgage banks, cooperative rural credit unions, and similar organizations and institutions devoting their attention to the promotion of agriculture and the betterment of rural conditions."[12] Less than three weeks after President Woodrow Wilson took office he appointed Gore to this commission.[13] Other duties hindered the Oklahoman from making the European visit,[14] but he was in hearty approval of the project, and he signed the report filed by the commission after its three-month tour.

From the data gathered in Europe, Senator Duncan U. Fletcher of Florida, chairman of the commission, framed and introduced in August, 1913, a bill to establish a system of privately controlled land banks to operate under federal charter. This measure was revised by a joint subcommittee of the House and Senate banking

[9] *Ibid.*, 8896–8897.

[10] "Brief Review of Official Record of T. P. Gore in the United States Senate, 1907 to 1914," 9–10, pamphlet in the Thomas P. Gore Papers, Division of Manuscripts, University of Oklahoma Library.

[11] George E. Putnam, "The Federal Farm Loan Act," *American Economic Review*, 6: 771 (December, 1916).

[12] *U. S. Statutes at Large*, 37: 885.

[13] Wilson to Gore, March 21, 1913, Woodrow Wilson Papers, Division of Manuscripts, Library of Congress.

[14] *Harlow's Weekly* (Oklahoma City, 1912–1940), 3: 12 (May 3, 1913).

committees which reported it in May, 1914, with an additional provision to require the government to furnish capital for the land banks, to purchase their bonds if private investors failed to do so, and to operate the system.[15] Called the Hollis-Bulkley bill, this measure set off a controversy in Democratic circles when the clause for government support was made public. President Wilson and Secretary of Agriculture Houston held that this would be special legislation for a particular group and not in the tradition of New Freedom principles. The agrarian spokesmen disagreed. They were convinced that in the farmer's attempt to gain independence from private bankers a rural credits system without governmental support and sponsorship would never succeed. When the House agrarian leaders proceeded to introduce the bill despite the administration's opposition, moves were made to cut short a possible revolt in the party. Carter Glass received a letter in which Wilson stated, "I have a very deep conviction that it is unwise and unjustifiable to extend the credit of the Government to a single class of the community."[16] The President declared that he would gladly approve the measure without the governmental aid provision, but hinted that he would veto it if the "radical propositions" were included.[17] The southern agrarian leaders were angered at this development, but they yielded to the pressure and temporarily halted their agitation for rural credits.

On February 2, 1915, while guiding through the Senate the bill making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1916, Gore submitted Fletcher's original rural credit bill of 1913 as an amendment. This amendment did not survive the road through the Agriculture Committee, however, and was never reported. On February 25, 1915, Porter J. McCumber offered a rural credits amendment without warning the administration leaders. Gore did not know what the amendment contained, but as chairman of the Agriculture Committee he accepted it with the understanding that it would be carefully considered in conference with the House. On this basis the Senate agreed to an amendment providing for the establishment of a bureau of farm credits in the Treasury Department.[18] After a conference with the President on the subject,[19] Gore expressed hope that the farm credits legislation would be retained in the agricultural bill when it finally passed. But the House conferees insisted on drastically revising the McCumber amendment, and Gore voiced objection. At last concluding that the subject required further study, the conferees rejected the original amendment.

At Gore's insistence a substitute for the McCumber amendment was included in the appropriation measure. This new amendment created a twelve-member joint committee charged with the responsibility of preparing by January 1, 1916, a bill providing for the establishment of a system of rural credits adapted to American needs and conditions.[20] This committee began work in March, 1915, and on January 3 of the following year it submitted a report of its subcommittee on land-mortgage loans, together with the draft of a proposed bill. Two days later Henry F. Hollis of New Hampshire introduced the bill in the Senate. Believing that the short-term credits which had been provided for in the Federal Reserve Act were not adequate for farmers and emphasizing the need for a system of long-term loans at low rates of interest with the amortization method of payments, Gore lent his support to this bill.[21] The bill passed both

[15] Arthur S. Link, *Woodrow Wilson and the Progressive Era, 1910–1917* (New York, 1954), 57.

[16] Wilson to Glass, May 12, 1914, Wilson Papers.

[17] Wilson to Morris Sheppard, December 22, 1914, *ibid.*

[18] *Congressional Record*, 63 Cong., 3 sess., 4593–4597.

[19] New York *Times*, March 1, 1915.

[20] *U. S. Statutes at Large*, 38: 1116; Thomas P. Gore, "Discussion of the Agricultural Credit Problem," *Proceedings of the Academy of Political Science [in the City of New York]*, 10: 265–266 (January, 1923).

[21] Gore in address before the New York Credit Men's Association of New York City, January 25, 1916, *Senate Documents*, No. 386 (ser. no. 6952), 64 Cong., 1 sess., 7.

houses of Congress in May without significant opposition and was signed into law by the President on July 17, 1916, with a number of interested guests present, including the members of the United States Rural Credits Commission.[22]

The culmination of several years of effort on the part of agrarian leaders, this Federal Farm Loan Act established twelve federal farm loan banks capitalized at $500,000 each, the essential function of which was to provide credit for farmers at a low rate of interest on a long-term basis. This act, which has been called the "Magna Charta of American farm finance,"[23] was a distinct victory for the agrarian leaders and represented their major achievement under the Wilson administration before the country's entry into World War I. It was probably the most important single piece of legislation in which Gore had a significant part during his entire career in the Senate.

Presiding over hearings in April and May, 1917, Agriculture Committee chairman Gore directed most of his attention and efforts during the spring and summer of 1917 to the problems of food production and control.[25] Approximately a month after America entered World War I, President Wilson asked for additional legislation giving him extraordinary power over the entire food supply of the country. Requesting the right to regulate business relationships as well as the kinds and amounts of foods that should be consumed, the President also asked for broad powers relating to the problems of hoarding, manufacture, sale, and use of foodstuffs.[24] Wilson further asked for a survey of the nation's food supply, a request with which Gore was in complete accord and which he sought to implement with a special bill introduced in May. Opponents of the food survey believed that investigators had no right to require farmers to reveal the amounts of their stored foods, and, because of this opposition, the question was debated many hours in the Senate and House before a similar House bill was ultimately accepted in August, 1917.[26] Gore had worked hard for this recommendation of the President.

Except for the food survey Gore generally did not agree with the President's wartime recommendations concerning food legislation. A sign of these differences appeared in May when the self-reliant senator, without conferring with the President, introduced a resolution which he thought conveyed ample powers to the executive for the erection and operation of a rather complete system regarding food supplies.[27] When Wilson's attention was called to Gore's independent action, the President wrote to the senator, "We are in danger, I fear, of multiplying unrelated pieces of machinery."[28]

The senator's open opposition to administration-sponsored legislation first appeared when the contents of the so-called Lever food control bill were fully known. Although favoring the purposes and objectives of the legislation, he concluded that the bill delegated unconstitutional powers to the executive, and in a conference on June 14 the Oklahoman informed the President of his position. At the President's suggestion the senator agreed to take the bill out of committee to allow debate on it.[29] Thus, on June 15 Gore reported back from the Agriculture Committee the administration bill. The committee had been evenly divided on the

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[22] Wilson to Fletcher, May 23, 1916, Wilson Papers.

[23] Herbert Myrick to J. P. Tumulty, July 14, 1916, *ibid.*

[25] Hearings before the Committee on Agriculture and Forestry, relative to proposals for increasing the production, improving the distribution, and promoting the convervation of food supplies in the United States, U. S. Senate, 65 Cong., 1 sess., 1 ff.

[24] Ray Stannard Baker and William E. Dodd (eds.), *The Public Papers of Woodrow Wilson* (New York, 1925–1927), *War and Peace*, I, 42–44.

[26] *Congressional Record*, 65 Cong., 1 sess., 5928; *U. S. Statutes at Large*, 40; 273–276.

[27] *Congressional Record*, 65 Cong., 1 sess., 2239; Gore to Wilson, May 21, 1917, Gore Papers.

[28] Wilson to Gore, May 17, 1917, Wilson Papers, Gore Papers.

[29] New York *Times*, June 15, 1917.

measure, and compromise was impossible without eliminating many of its features. It was returned to the floor without amendment or recommendation to allow a detailed study by the entire Senate. Unable to support the measure unless it was materially amended, Gore delegated George Chamberlain of Oregon to take control of the measure on the floor.[20] By devoiding himself of any responsibility for the bill, Gore was able to oppose it in spite of the administration's wishes.

As originally drawn, the Lever food bill delegated to the Chief Executive broad powers over food production, distribution, and regulation. The principal provision of the bill authorized exceptional powers to a food administrator not only over food but also over many businesses in the nation. The debates in Congress brought out clearly the power which the bill would have placed in one individual's hands. Gore feared for the life of the business of the country if one man were given such wide authority. "One of the vital assets of the country in war time is its business," he asserted, "and nothing must be done to disturb it."[21] He remarked that the food administrator might become "a blood clot on the brain of business."[22] The section requiring businesses to secure licenses from the food administrator repelled Gore. "To require a free man in a free country to take out a license to transact business when he should be encouraged to transact business runs counter to my view of first principles as well as of sound public policy," he declared.[23]

Not only did Gore object to the wide powers invested in the food administrator relating to business, he also disliked the virtually unlimited authority over food regulation and production to be given to the new official. The opponents of the bill charged that, as originally drawn, it gave the food administrator the right to regulate what should be eaten upon the tables of the nation's households. Gore expressively declared his opposition to one man having the power to tell another man that he must eat steak even though he preferred sirloin or to eat neck steak after he ordered T-bone.[24] Nor was the senator willing to give one man control over the planting done by the nation's farmers. Section 1 was so broad, Gore said, that no farmer could give a mortgage on a "stocking-footed mule or a calico pony" if the food administrator chose to forbid it.[25] When another senator attempted to calm Gore's fears by declaring that no sane man would undertake to exercise such authority, Gore provokingly stated that he thought it was unwise for a body of sane men charged with responsibility to confer upon a person powers which no one but an insane man would attempt to exercise.[26]

As the food measure made its way through the Senate, its opponents were strong enough numerically to write several amendments into it. They were able to strike out part of the sections which carried broad authority over production and consumption, as distinguished from distribution. They also removed the provision controlling farm financing, as well as the section giving the food administrator the privilege to commandeer farmers' seed. As amended by the Senate, the bill allowed the government to commandeer private property only for public uses connected with common defense.[27]

But when Senate and House conferees gathered to reconcile their differences on the bill, the Senate representatives often yielded to the demands of the delegates from the lower house, and several of the opposition-sponsored amendments were rejected in conference. Such action infuriated Gore. When the bill was being considered in the upper chamber in its final form, Gore accused the Senate conferees of giving up too readily on amendments favored by him. This charge caused Cham-

[20] *Congressional Record*, 65 Cong., 1 sess., 3772.
[21] New York *Times*, June 19, 1917.
[22] Oklahoma City *Daily Oklahoman*, July 6, 1917.
[23] *Congressional Record*, 65 Cong., 1 sess., 5272.
[24] *Ibid.*, 3908.
[25] *Daily Oklahoman*, June 27, 1917.
[26] *Congressional Record*, 65 Cong., 1 sess., 5996.
[27] *Daily Oklahoman*, July 6, 1917; *Harlow's Weekly*, 13: 13–14 (August 15, 1917); *U. S. Statutes at Large*, 40: 279.

berlain to strike back at the blind man's opposition to the bill. If Gore would tattoo "recede" on the foreheads of senators who receded, commented the Oregonian, the word "obstruct" could be imbedded on the forehead of the Oklahoman.[38] President Wilson agreed that Gore had used "obstructionist" tactics and thanked Chamberlain for making his remarks. "It is time that we put an end in the most emphatic way to the sort of tactics that have been indulged in," concluded the President in his note to Chamberlain.[39]

Gore denied deserving the obstructionist label. He reminded Chamberlain and the Senate that he had turned the bill over to friendly hands because he did not want to be liable to the suspicion of mismanagement or of an attempt to kill the measure under a false show of friendship. "I did not use the stiletto; I did not fight from ambush; I fought in the open field," he remarked, defending his action.[40] Whether Gore deserved the obstructionist label lies in the definition of the term. That he was one of the most outspoken opponents of the bill there is no question. Because of his antipathy toward it, he delegated to an administration-approved member of the Agriculture Committee the task of steering the bill through the Senate and promptly led the opposition to it. To those who backed the administration, such action appeared to be obstruction; to Gore, it indicated fair play on his part and the exercise of his due prerogatives.

The Lever Food Control Act as it was finally accepted and signed into law in August, 1917, was a far-reaching piece of legislation. Despite the militant opposition which limited some of its original provisions, it gave the Chief Executive wide powers for regulating food production, distribution, and prices. Section 14 of the act empowered the President to fix a reasonable, guaranteed price for wheat. On August 11, 1917, by virtue of this authority President Wilson set a minimum of $2.00 per bushel for No. 1 northern spring wheat at Chicago.[41] Similar relative prices were established at other wheat centers of the nation. When it became apparent that the fixed price was not only the minimum but also the maximum figure, Gore went into action. A conference with Food Administrator Herbert Hoover and a letter exchange with the Secretary of Agriculture assured the senator that the price was not the minimum but the absolute price.[42] Since, in his opinion, the laws of economics had been cast into the winds, Gore resigned himself to working within the limits of the situation.

Although opposing price fixing in principle, Gore advocated a higher absolute figure. In February, 1918, the senator introduced a resolution providing that the minimum price for the 1918 wheat crop be raised from $2.00 to $2.50 per bushel. When this measure made no progress, he introduced an amendment to the agricultural appropriation bill proposing important changes in section 14 of the Food Control Act. In addition to raising the guaranteed minimum wheat price to $2.50, this amendment would also substitute No. 2 northern wheat for No. 1 as the basic grade. Explicitly stating that the new price was to be the minimum and not the absolute price, it would also substitute the local elevator or the local railway market in the area where the wheat was grown for the principal interior primary markets as designated in the Food Control Act.[43]

Because of agitation for a higher figure and unrest among the farmers, the President had added twenty cents per bushel to the minimum price of wheat. The Wilson supporters insisted that $2.20 per bushel was adequate, but the farm representatives continued to labor for an even higher price. Responsible for steering the agricultural appropriation bill through the

[38] *Congressional Record*, 65 Cong., 1 sess., 5833.

[39] Wilson to Chamberlain, August 8, 1917, quoted in Ray Stannard Baker, *Woodrow Wilson, Life and Letters* (New York, 1927–1939), VII, 209.

[40] *Congressional Record*, 65 Cong., 1 sess., 5834.

[41] Frank M. Surface, *The Stabilization of the Price of Wheat During the War and Its Effect Upon the Returns of the Producer* (Washington, 1925), 11.

[42] *Congressional Record*, 65 Cong., 2 sess., 8488.

[43] *Ibid.*, 3594.

Senate, Gore used his position to include his amendment. The majority of the Agriculture Committee had favored his resolution, and it was no serious problem to obtain support for the wheat amendment. On March 21, 1918, by an overwhelming vote of 49 to 18 the Senate made the wheat amendment a part of the appropriation bill.[44]

When the full bill was taken up in conference in April, all but one of the differences between the House and Senate versions were compromised with comparative ease; the conferees had trouble agreeing on the wheat amendment. With a large majority of members behind them, the Senate conferees, led by Gore, refused to compromise on the $2.50 figure as the fair price for wheat. Several times the conferees reported to the Senate that they could not agree with the House leaders on the wheat price, but each time at the recommendation of Gore they were instructed to insist on the $2.50 price. On June 29 Gore at last suggested that a slightly lower figure would be acceptable, recommending the reduction to ten cents per bushel.[45] The conferees quickly agreed to a reduced price, and $2.40 was accepted as a uniform minimum price for No. 2 northern spring wheat at the principal interior primary markets and at any other such places the President might choose to designate. With this adjustment effected, the appropriation bill was promptly accepted by both houses of Congress and sent to the White House for the presidential signature.

But Wilson refused to assent to the wheat amendment. "Nothing more distinctly against the public interest has been put into a bill in many a month," he had written when the Senate had first accepted the amendment, "and I fail to see any need for it, from the point of view even of the farmer."[46] In a July veto message which the House subsequently refused to override, the President dissented from the amendment on principle as well as expediency. He expressed his approval of the method of regulation already in use, which he believed had resulted in a satisfactory manner "considering the complexity and variety of the subject matter dealt with."[47] Gore was not happy with the President's action, although he admitted that he endorsed most of the veto message. He approved of the general principles relating to price fixing laid down by the Chief Executive, but in this case he was willing to forego those principles. He believed, despite his convictions concerning price control, that the price of wheat should be raised in view of the rising cost of production and operation entailed by the wheat farmers.[48]

As chairman of the Agriculture Committee Gore dealt with many peripheral problems relating to the war effort. Arguing that the nation's food supply could be substantially increased indirectly, he advocated larger appropriations to fight animal diseases. He was quite perturbed when an appropriation for the conservation of the meat supply by the eradication of animal diseases was reduced from $4,500,000 to $825,000. Chiding the Senate for its hesitancy in voting funds for the eradication of the cattle tick, he remarked, "Last week we appropriated $3,400,000,000 to exterminate human life. . . . Now we haggle about a modest appropriation to exterminate pestilence and disease and to multiply the means of maintaining human life."[49] He expressed disappointment with Senators who "sit . . . and pare cheese and nibble at cherries when the destiny of the Nation may be to a measurable extent affected by this [appropriation] measure."[50] He was quoted as saying, "I would rather have the honor of combating successfully the cattle tick, than of restoring a city in France."[51]

When the Republicans regained control

[44] *Ibid.*, 3831–3832.
[45] *Ibid.*, 8488.
[46] Wilson to Atlee Pomerene, March 25, 1918, Wilson Papers.
[47] *House Documents*, No. 1229 (ser. no. 7444), 65 Cong., 2 sess., 3.
[48] Thomas P. Gore, "The Wheat Farmers' Dilemma," *Forum*, 60: 257–286 (September, 1918).
[49] *Congressional Record*, 65 Cong., 1 sess., 2980.
[50] *Ibid.*, 65 Cong., 2 sess., 2972.
[51] New York *Times*, May 29, 1917.

of the upper chamber as a result of the 1918 mid-term elections, Gore was deprived of the chairmanship of the Agriculture Committee. This change plus the overshadowing influence of the fight over the ratification of the Treaty of Versailles led him to give little attention to affairs of agriculture from 1919 until he left the Senate in 1921.

Gore's clash with the Chief Executive regarding agricultural legislation of the war period was only one aspect of a basic difference which foreshadowed the Senator's future attitudes. Gore had not favored the United States' entry into the war in the first place, and throughout the conflict he expressed opposition to much of the Wilson-sponsored emergency legislation. He especially disliked the laws which allowed the Federal Government to take over certain private enterprises or which placed restrictions upon individual or industrial activity. He developed considerable opposition to deficit spending.

While Gore was out of the Senate during the 1920's, he crystallized his attitude toward federal assistance to individuals, states, and private corporations. In that decade he remained in Washington to practice law, and he was out of touch with the needs of Oklahoma farmers. His role as legal advisor to oil companies which were involved in litigations with the Federal Government in this period probably reinforced his growing faith in private enterprise. He was definitely becoming more conservative in his political thinking.

Although assisting with the election of Franklin D. Roosevelt in 1932, Gore soon found himself out of step with the New Deal. The ambitious plans advanced by the New Deal leaders for relieving farm distress did not receive his approval. Not a member of the Agriculture Committee during the 1930's, Gore, in fact, gave little attention to the plight of the farmers. The debates on the first Agricultural Adjustment Act found him participating only slightly. Gore appears to have been interested in the bill only because he desired a reduction in the salaries to be appropriated for the various officials who were to administer the program. When the final version of the act was accepted, Gore was "detained from the Senate on official business."[52] Whether the Oklahoman would have voted for the bill is a moot question. For a measure amending the Agricultural Adjustment Act the senator expressed approval, but he manifested misgivings when numerous amendments were added changing the fundamental character of the legislation. A section designed to establish and maintain parity prices did not seem to Gore consistent with the original philosophy of the bill. "I think this measure is going beyond its original limit, and it probably will react upon the sponsors of the measure in the long run," he observed.[53]

The senator was unhappy with many of the activities of the "Triple A" program. He voiced opposition to the government's regulating the choice and quantity of crops to be planted by farmers. Scoffing at crop reduction as a way to decrease surpluses, thus increasing demands for food products, he questioned the policy of "murdering" pigs under the program.[54] He recognized that values could be enhanced by destroying wealth, but he saw the situation in a strikingly different light when he remarked, "We cannot feed the hugry with a decimal point or clothe the naked with dollar marks."[55]

The Bankhead Cotton Control Act, which limited the cotton crop to about ten million bales, granted liberal benefit payments to planters and guaranteed a price of ten cents a pound. Before its passage in April, 1934, the bill received Gore's outspoken opposition. Trying to neutralize a reaction from his farm constituency in the cotton areas of Oklahoma which favored the bill, Gore announced that it was "a duty and a privilege to carry out the ascertained wishes of the farmers of my State when I can do so without violating

[52] *Congressional Record*, 73 Cong., 1 sess., 2562, 3121.
[53] *Ibid.*, 74 Cong., 1 sess., 11476.
[54] Gore to Henry A. Wallace, September 14, 1933, Gore Papers.
[55] *Congressional Record*, 73 Cong., 2 sess., 10354.

my official oath to support and defend the Constitution of the United States," but he declared that he could not conscientiously cast his vote for the measure.[56] His objections to the bill were both economic and constitutional: he believed that the farmers were "winding a boa constricter about themselves that one day may break every bone in their bodies," and he reasoned that the measure took property without due process of law and without just compensation.[57]

When the New Deal leaders announced plans to abolish the tenantry system in the rural areas and to rehabilitate the marginal farmers, Gore expressed doubt about the advisability of such an undertaking. With his conservatism thoroughly engrained, he remarked, "The tenantry system, while it may have many evils, is a system that does exist, and whatever does exist has reason for existence. It is the result of the play of economic forces. It is easy to tear down an existing system; it is not so easy to set up another system in its place."[58] Gore was aware of the abuses of the tenantry system, especially in the South, and he was sympathetic with the aims of the proposed legislation, but he was convinced that the solution should be evolutionary. Since, in his opinion, the tenantry bill did not take local conditions into consideration, an artificial system set up overnight in a given community would hardly be successful. He insisted that his opposition to the measure rested on the fact that it did not help the "honest-to-God small tenants" who most needed assistance.

Similarly, Gore opposed the government's making loans to agricultural corporations. Such corporations he called "Frankenstein monsters to destroy farmers."[59] He favored adjusting farm mortgages in order to make payments easier for the hard-pressed farmers by reducing the principal of the mortgage indebtedness, by cutting the rate of interest, or by converting short-term loans into long-term ones.[60] He did not approve of the administration's bankruptcy act for farmers, although he gave no explanation of his votes. The administration's important rural electrification bill received absolutely no attention from the Senator, and one can only surmise what his attitude was toward it.

Gore viewed the New Deal's program of conservation, however, as indispensable for the future of the country, and he was one of the prime movers for soil conservation. The damaging dust storms of the early thirties, with the loss of valuable topsoil by wind and water erosion, forced Gore to favor government intervention in this area. Generally opposed to federal regulation, he acknowledged erosion control as a proper function of the central government, since it entailed engineering problems which the individual farmer or state could not handle alone.

To meet the related threats of flood and erosion, the Senator advocated a network of dams and reservoirs on the Mississippi River's tributaries, as well as terraces and other conservation measures on the individual farms. With this in mind Gore introduced a bill to protect the land of the Mississippi watershed against soil erosion. A similar House bill was ultimately accepted, but Gore deserves mention for his strong advocacy of this conservation measure. He also introduced a bill to establish within the Department of Agriculture a soil conservation service to deal with flood water affecting the navigability of streams. Again his bill was not the one which finally became law, but the phrase "soil conservation service," suggested by the blind Senator, was substituted for "soil erosion control service," the name originally applied to the new agency within the Department of Agriculture.[61] Even though he had serious objections on economic grounds ("it substitutes artificial forces for natural forces") and for administrative reasons ("it places more power in one man than [it] should"), Gore could not

[56] *Ibid.*, 5710.
[57] *Ibid.*
[58] *Ibid.*, 74 Cong., 1 sess., 9917.
[59] *Ibid.*, 1651.
[60] *Ibid.*, 73 Cong., 1 sess., 1958.
[61] *Ibid.*, 74 Cong., 1 sess., 6012.

resist voting for a Senate bill providing for farm relief through conservation and utilization of the soil resources of the nation. He preferred a measure with more definite terms, standards, and limitations, but since he had a special interest in the subject of conservation, he laid aside his doubts and supported the administration's rural relief measure.[62] In his opinion the conserving of the nation's soil was the most important constructive work the federal government did during the depression years.[63]

Excluding general legislation regarding soil conservation, Gore gave little attention to the needs of his farm constituency throughout his last term in the Senate. He usually did not favor New Deal legislation attempting to meet rural needs, and he played the role of opponent more often than that of advocate. Nor did he offer alternative solutions to the program advanced by the New Deal. Clearly Gore did little work of a positive nature in the field of agricultural legislation while he was in the Senate during the thirties.

Gore's long service in the United States Senate covered a significant period in agricultural problems and legislation. Although the Populist Party was defunct by the time Gore entered the Senate in 1907, many of the agrarian problems responsible for the rise of that party had not been solved. As a progressive Democrat with a Populist past, Gore advocated federal assistance for rural areas before the start of the First World War. With the coming of the conflict, Gore expressed his pacificism by opposing the country's entry into the war; at the same time he disapproved of federal interference in private industry. Not in the Senate in the 1920's, Gore indicated little interest in the plight of the nation's depressed farmers during that decade. With his return to the Senate in the 1930's, he continued to oppose federal intervention in private enterprise. Nor did he favor federal spending, including aid to agriculture, despite the fact that Oklahoma farmers were among those hardest hit by the economic depression.

The strikingly different attitudes expressed by Gore regarding agricultural legislation were the result of a change in his basic philosophy of government. With a rampant Populist background and keenly aware of the ground swell of progressivism in the period before World War I, Gore advocated reform legislation in a number of areas. But he opposed government interference in private enterprise so violently during the war that he never returned to his former position regarding federal aid. His close association with the conservative oil interests of Oklahoma undoubtedly contributed to this change. In fact, in his old age Gore opposed almost all of the things which he had favored in his earlier career: direct election of Senators, the income tax, pensions, reciprocal tariff agreements, federal supervision of industries, and federal aid to state governments, private corporations, and individuals. His distaste for deficit spending became a virtual obsession with him in his later career. The only consistent attitude which Gore held throughout his entire senatorial career appears to have been his opposition to war. Gore was out of step with the times during the 1930's, but the fact that he was not consistent concerning agricultural legislation throughout his public life does not dim his constructive work in that area.

[62] *Ibid.*, 74 Cong., 2 sess., 2165.
[63] *Ibid.*, 74 Cong., 1 sess., 9917.

HORSE THIEVES IN CHICAGO

"A gang of horse thieves is reported as at work in and around Chicago."—"News of the Day," *Central Illinois Gazette*, September 22, 1858.

An Historical Consideration of the Terms "Corn" and "Corn Belt" in the United States

WILLIAM WARNTZ

It is a true but undoubtedly presently a trivial statement that the term "corn" does not have precisely the same meaning in both the United States and the United Kingdom. Virtually everyone in the United States understands "corn" to mean *Zea mays* or maize, whereas in the British Isles the term refers to the cereal grains collectively, or to wheat, rye, etc. individually if a grain is of special importance to an individual region, as in East Anglia, Scotland, etc.

But, inasmuch as the original thirteen of the United States had been British colonies and in view of the fact that nearly half of the period of American history (169 years prior to 1776 as compared to 180 since) was spent as a British colony, it seems not unreasonable to expect that the term originally had similar meanings on both sides of the Atlantic.

Accordingly the author set out to investigate whether the above expectation be true, and if so, to trace the changing meaning of the term in the United States. In addition an attempt was made to discover the origins of the term "Corn Belt" in reference to the region in the United States now generally recognized as such by professional geographers and the public alike.

In the remaining part of the paper the unqualified use of the term "corn" by the author shall be in reference to maize, i.e., the product now understood in the United States to be corn. Exceptions to this usage will be specifically noted.

Historically, corn was among the earliest cultivated crops on the American farm. The first colonists in Virginia and Massachusetts found the Indians growing corn and preparing various foods from it. It represented the best and most important crop to the colonists because of the availability of the seed and the good yields. The Virginia colonists planted only about thirty acres of corn in 1609. But, there are indications that by 1631 there was a large enough acreage of corn to make possible a surplus crop for export.

The westward movement of corn cultivation began after the American Revolution. Tennessee, Kentucky, and the rich lands in the Old Northwest Territory were settled by immigrants from the seaboard. These settlers marketed their surplus crops in the form of whiskey and livestock. National production of corn more than doubled in the twenty years from 1839 to 1859 because of the rapid settlement of the prairie states. The steel plow, developed after 1837, gradually came into general use and greatly aided in the breaking of the heavy prairie soils. The advent of the railroad aided the farmer to a great extent as well. The American Civil War delayed the further expansion of corn production, however; a smaller corn crop was reported in the 1869 census than in the 1859 census. By 1879 there existed a well defined, although unnamed, corn belt, as well as an increased export of corn and meat products. A decline in railroad freight rates at this time encouraged transport of farm products from this corn belt. Since 1899 adjustments have been made in the acreage of corn with land less well suited to corn going to other crops. At the same time, better corn seed has come into use as evidenced by the increased yields per acre.

With this brief historical background in mind we can proceed to the main body of this paper.

In the first place, a brief delimitation of the region under consideration, i.e., the Corn Belt, is probably advisable. As has been indicated, one of the objects of this paper is to explain the origin of the term and to trace its evolution into the popular idiom that it is today. Therefore, it is

logical that the description should come from a popular present-day periodical.[1]

The Corn Belt is an irregularly-shaped area that includes all of Iowa, and parts of Ohio, Indiana, Illinois, Wisconsin, Minnesota, South Dakota, Nebraska, and Missouri. It reaches from mid-Ohio westward almost to the Colorado border. The southern boundary follows the southern limit of glaciation across Ohio, Indiana, and Illinois, then north of the Ozarks in Missouri and across Northern Kansas. Its northern rim is irregular, extending as far north as Southwestern Wisconsin and Southern Minnesota.

The professional geographer most certainly will not agree with the boundaries as outlined above. But, the description is representative of the popular concept of the area included in the Corn Belt. And, since this paper is not an attempt to regionalize the "Heart of North America," the boundaries stated certainly are adequate as a popular expression of the limits of the present-day Corn Belt.

Some corn is grown in every state in the Union. It is apparent that if a region has acquired the appellation "Corn Belt," it is reasonable to expect that it is the country's region of greatest production. Such is the case in this region under discussion which has less than one-tenth of the nation's area, yet produces over half of the nation's corn. This point is made to show the advisability of indicating the relative importance of and the shifting of historical centers of the nation's corn production in order that the origin and evolution of the term "Corn Belt" may be best understood.

Following the American Revolution, thousands of settlers moved into the Kentucky area. The first national census in 1790 showed a population of over one hundred thousand. By 1820, Ohio, Indiana, and Illinois had become states. Missouri became a state the following year. By 1840, nearly all of the Indians had been cleared from the land east of the Mississippi River, and in 1848 Wisconsin was admitted to the Union as the last state east of the Mississippi (excepting West Virginia in 1863). The importance of corn to the early settlers in these new states can easily be seen by reference to the national census of agricultural statistics for the production of Indian corn in 1839.

Total national production of corn for 1839 was 337,531,875 bushels. The importance of the new states in corn production is apparent. It can thus logically be inferred how important corn must have been to the settlers of these new states.

PRODUCTION OF INDIAN CORN IN 1839
FOR THE TEN LEADING STATES
IN MILLIONS OF BUSHELS
(To the nearest half million)*

1.	Tennessee	45
2.	Kentucky	40
3.	Virginia	34.5
4.	Ohio	33.5
5.	Indiana	28
6.	North Carolina	24
7.	Illinois	22.5
8.	Alabama	21
9.	Georgia	21
10.	Missouri	17

* After statistics appearing in *Agriculture of the United States in 1860* (Washington, 1864), vol. 1, xlvii.

An examination of the figures for the production of corn in 1849 and 1859 further reveals the increasing importance of corn.

PRODUCTION OF INDIAN CORN IN 1849
FOR THE TEN LEADING STATES
IN MILLIONS OF BUSHELS
(To the nearest half million)*

1.	Ohio	59
2.	Kentucky	58.5
3.	Illinois	57.5
4.	Indiana	53
5.	Tennessee	52
6.	Missouri	36
7.	Virginia	35
8.	Georgia	30
9.	Alabama	28.5
10.	North Carolina	28

* *Agriculture in the United States in 1860*, vol. 1, xlvii.

The total production of Indian corn for the United States and Territories in 1849 was 592,071,104 bushels.

[1] "The Corn Belt," *Holiday*, 4: 38 (August, 1948).

PRODUCTION OF INDIAN CORN IN 1859
FOR THE TEN LEADING STATES
IN MILLIONS OF BUSHELS
(To the nearest half million)*

1.	Illinois	115
2.	Ohio	73.5
3.	Missouri	73
4.	Indiana	71.5
5.	Kentucky	64
6.	Tennessee	52
7.	Iowa	42.5
8.	Virginia	38
9.	Alabama	33
10.	Georgia	30

* *Agriculture in the United States in 1860*, vol. 1, xlvii.

The production of Indian corn in the United States and territories in 1859, according to the Census of 1860, was 838,792,740 bushels. Nearly five bushels of corn were raised for every bushel of wheat, and corn represented more than twice the aggregate production of wheat, rye, oats, barley, buckwheat, peas, and beans. Such had been the case in 1850 as well.

Tennessee was the greatest corn-producing state in 1840, Ohio in 1850, and then Illinois in 1860. The six states of Illinois, Missouri, Ohio, Indiana, Kentucky, and Tennessee were responsible for the production of over half of the total corn crop of the United States and the Territories in 1860. Iowa, the seventh state in 1860, had increased her production of corn more than any other state. In twenty years there was an increase from a half million bushels to more than forty-two million bushels.

By 1860 a definite continuous region of concentrated production of corn had arisen. The position of the median point of the number of farms, acres of farm land, and the production of corn had shifted from approximately twenty-seven miles east of Louisville, Kentucky, in 1850 to a point sixty-six miles south-southwest of Indianapolis, Indiana, by 1860.

It is important to note that the tables of production all were headed by the term "Indian Corn." The simple term "corn" did not yet have the meaning that it has today. "Corn" in 1860 denoted what it still does in Great Britain, i.e., edible cereal grain, such as wheat, rye, barley, oats, etc., collectively.

An article in the October 1847 issue of *The American Review—A Whig Journal*, "Our Recent Corn Trade—Its Origin and Probable Results," had spoken of the corn trade and had included in this general category such commodities as wheat, barley, and Indian corn.

Following the Civil War an even more definite region of concentrated corn production came into existence. One is impressed with the similarity in shape and size of that "corn belt" and the present-day Corn Belt. The center of production had shifted from a point in Illinois fifteen miles west by south of Terre Haute, Indiana, in 1870 to a point fifteen miles north of Springfield, Illinois, in 1880. The total United States corn crop for 1879 was 1,754,861,535 bushels.

PRODUCTION OF INDIAN CORN IN 1879
FOR THE TEN LEADING STATES
IN MILLIONS OF BUSHELS
(To the nearest half million)*

1.	Illinois	325.5
2.	Iowa	275
3.	Missouri	202.5
4.	Indiana	115.5
5.	Ohio	112
6.	Kansas	105.5
7.	Kentucky	73
8.	Nebraska	65.5
9.	Tennessee	63
10.	Pennsylvania	44

* After statistics appearing in *Report on the Productions of Agriculture* (Washington, 1884), vol. 3, 90.

The report from which the above data were taken contained the following significant remarks:

> In this report, in accordance with American usage, and also with the language of statute laws pertaining to the grains in many of the states, the word 'corn' is used as a specific name for Indian corn or maize, and the word 'grain' as a general term for all cereals.

Thus we see at least the beginning of official Federal government usage of the term "corn" in its present American sense. However, in this report, despite the above note, there was great reluctance to use the simple term "corn." All of the tables concerning crop production listed

Indian corn. The following sentence appeared at the beginning of the section dealing with Indian corn: "Of the cereal production of the country, Indian corn stands first in amount much exceeding the sum of all others."

As the note above indicated, the term "corn" meaning Indian corn or maize was becoming prevalent in popular American usage and apparently in state legislatures. An examination of the then current periodicals reveals this to be true although almost without exception the authors cautioned that when they used the term "corn" what they really meant was Indian corn or maize. A token search failed to reveal the suggested legislative use of the term.

In 1882 there occurred what might very well have been the first printed use of the term "corn belt" in the sense that the concept is now used. A periodical, *The Nation*,[3] in its summary of the week's news includes the following report:

> Crop reports from the West still continue favorable, though there are some discouraging accounts of the prospects in the "corn belt." The wheat harvest is in progress in many of the states, and an extraordinary yield seems to be assured.

Of course, the term was enclosed in quotation marks and was not used as a proper noun; yet, it represented the beginning of a trend.

In 1891, in an article, "The Indian Corn as our National Plant," an author used Indian corn and corn readily and interchangeably and although he used the former in the title, he suggested that "corn production" was the basis of our economy and "to this friendly plant is mainly due our success in opening the great western states and settling them."[4] Thus, the tendency to use the term "Indian corn" still remained. Later in that same year, however, the *Boston Financial Record* considered Sioux City Iowa as the "center of the great corn-belt."[5]

In 1898, C. Wood Davis, in an article entitled "Indian Corn and Cotton-Seed," had this to say about corn:

> Of all American products, whether of soil, mine, or factory, Indian corn is by far the most important. Not only does it employ more acres than any other grain, but nearly as many as wheat, oats, rye, barley, buckwheat, and cotton together.[6]

Throughout the article Mr. Davis used the words "corn," "maize," and "Indian corn" interchangeably and in quite the same sense.

Despite this carryover in the use of terms, the concept of a corn belt was becoming fixed in writers' minds. C. Wood Davis further wrote: "Moreover, as late as 1888, there existed great numbers of small establishments throughout the 'corn belt' engaged in 'cutting meats' solely for local consumption." He also commented that

> Everywhere in the South, cotton-seed meal has displaced corn; much of that formerly used being of Northern production; and enormous quantities of cotton-seed meal are shipped, especially in the years of defective corn crops, to a vast number of counties in the 'corn belt'.[6]

The United States Census of 1900 agricultural publications, however, made no mention of the "corn belt" as the geographical region of concentrated production, and the term "Indian corn" was still used in crop production graphs, maps, and production statistics.

The turn of the century did witness the return of the center of production of corn (as previously defined) to a position east of the Mississippi River. By 1890 the increase in the area under corn in Nebraska, Kansas, Iowa, and other states west of the Mississippi, along with the high yields per acre obtaining in that region, had transferred the center of corn production to a point in Missouri fifteen miles west by south of Quincy, Illinois. However, by 1900 the center had shifted again, this time to a point twenty-three miles east northeast of Quincy.

In the November 1903 issue of *The World's Work*, T. N. Carver, then Professor of Economics at Harvard University, wrote of a "one thousand mile jour-

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[3] *The Nation*, 35: 24 (July, 1882).
[4] *New England Magazine*, 4: 66ff (March, 1891).
[5] November 7, 1891.
[6] C. Wood Davis, "Indian Corn and Cotton-Seed," *Forum*, 24: 729 (February, 1898).
[6] *Ibid.*

ney on horseback through the most prosperous farming country in the world." His own words can best indicate the status of the terms "corn" and "corn belt" at that time.

> Equipped with saddle-bags, note-book, and a camera, I travelled through what may properly be called the corn belt, avoiding the large towns as far as possible, stopping over night with farmers as often as opportunity offered, learning what I could about the growing and disposal of the corn crop and the conditions of life among the corn growers. . . .
>
> Though corn is grown in greater or smaller quantities in almost every county in the United States where there is tillable land, and though there are few counties where it is grown exclusively—diversified farming being the rule even in the center of the corn country—there is yet a tolerably compact strip where corn is the principal crop, and which may therefore properly be called the corn belt. This region, as may be gathered from the accompanying map[6] includes a little of northwestern Ohio, a considerable strip across northcentral Indiana, all of northern and central Illinois, the whole state of Iowa, northwestern Missouri, northeastern Kansas, and southeastern Nebraska. On the map it roughly resembles an elongated kite with the small end in northwestern Ohio and the widest part on the Missouri River.[7]

In the same magazine, the following month, the same author presented an article entitled "Life in the Corn Belt." T. N. Carver concluded that the "corn belt is the most considerable area in the world where agriculture is uniformly prosperous."[8]

Considerable credit is due Professor Carver for crystallizing the concept of the corn belt. He delimited it, albeit not on a concrete statistical basis, and made it a workable geographic entity. An examination of the then current periodicals revealed the fact that the term was being generally used especially in those periodicals appearing after 1905.

The 1906 edition of the *Century Dictionary*[9] prepared under the supervision of W. D. Whitney, Ph.D., Yale University, had no entry for "corn belt" nor was mention made of it in any respect. However—and this is important in dating the general use of the term—the 1910 supplement to the above edition contains the following entry:

> Corn-belt (of the United States)
>
> The states where Indian corn is most extensively grown. These are seven in number: Illinois, Iowa, Kansas, Nebraska, Missouri, Indiana, and Ohio.[10]

The government publications of agricultural statistics based on the United States Census of 1910 made no mention of *the* or even *a* corn belt. But, the unqualified use of the term "corn" alone appears in all crop production charts and statistics.

A quite thorough examination of the journals of the professional geographers for the period from 1910 to the late 'twenties reveals that the geographers themselves were reluctant to use the idea of a Corn Belt in print. Only occasionally did the term appear and then in vague reference to the corn-growing region of the United States. A search by the author failed to turn up any studies done on any aspects of what geographers now consider the Corn Belt. The great contribution of the late O. E. Baker to geographical thinking in a regional sense will be discussed later.

An examination of the *Yearbooks of the United States Department of Agriculture* offered some interesting information. The first mention of a corn belt occurred in the 1906 edition in which a "drought in the corn belt" is mentioned for the previous year. Another use of the term appeared in an article in the 1911 yearbook. The paper discussed crop rotation, but what is more important to this study, it also delimited the region.

> For the purposes of this paper the corn belt will be considered as including the States of Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, and Nebraska, together with southern portions of Michigan, Wisconsin, and Minnesota, the south-

[7] Carver used the U. S. Department of Agriculture map after the U. S. Census of 1900. T. N. Carver, "The Corn Growers," *The World's Work*, 7: 4127–37 (November, 1903).

[8] T. N. Carver, "Life in the Corn Belt," *The World's Work*, 7: 4232–39 (December, 1903).

[9] *Century Dictionary—An Encyclopedic Lexicon of the English Language* (Century Publishing Company, New York, 1906).

[10] *Century Dictionary—An Encyclopedic Lexicon of the English Language—1910 Supplement* (New York, 1910).

eastern portion of South Dakota, and the western half of Kentucky.[11]

That areas of limited corn production are within these boundaries is readily apparent.

The term did not appear again until 1917. In the meantime, a map of the agricultural regions of the United States appeared in the 1915 yearbook. Oddly enough, the states mentioned above were included with several others in one large region called the Corn and Winter Wheat Belt which lay between the Cotton Belt on the south and the Hay and Pasture Province on the north.

From 1917 on, the term was used frequently, albeit vaguely until the agricultural economist, O. E. Baker, crystallized the concept and presented it as a working tool to professional geography.

Dr. Baker, of the United States Department of Agriculture, in addition to contributing frequently to the Department's Yearbooks, undertook research, using government facilities, concerning a great many aspects of agriculture in North America. The first results of his work appeared in 1918 in the advance folios of the *Atlas of American Agriculture*.[12]

The work had been interrupted by the first World War after which it was supplemented by the agricultural information from the census of 1920. In its completed form in 1928 the atlas included a wealth of information. Its six parts included the physical base for agriculture, land utilization, crops, livestock, land tenure, size of farms, and farm population. Dr. Baker also supervised the publication of the *Graphic Summary of American Agriculture* based on the 1920 census, utilizing dot maps to present the data obtained from the census. The culmination of Dr. Baker's work came when his extremely well-written "Agricultural Regions of North America" appeared first in 1926 in *Economic Georgraphy*.[13]

The whole of North America was regionalized on sound agriculture bases with statistical data used to define boundaries, but with such boundaries modified in favor of physical ones wherever advisable. One of his agricultural regions was, of course, the Corn Belt.

The early importance and the lasting value of the late Dr. Oliver Edwin Baker's work is attested to by the wide acceptance of his terms and the universal employment of his ideas by professional geographers. An inspection of the texts published immediately after his regionalization shows an immediate acceptance of his regions. Likewise, an examination of texts published within the last few years shows a continuing use of the same regionalizations. Geographers remain in his debt, but they must also be ready to accept evidence suggesting the need for a new regionalization of American agriculture, as for example, in the current work of Professor John Weaver of the University of Minnesota.

[11] C. B. Smith, "Rotation in the Corn Belt," U. S. Department of Agriculture, *Yearbook 1911* (Washington, 1911), 325-336.

[12] O. E. Baker, ed., *Atlas of American Agriculture—Advance Folios* (Washington, 1918).

[13] See especially: O. E. Baker, "Agricultural Regions of North America—Part IV—The Corn Belt," *Economic Geography*, 3: 447-465 (October, 1927).

CAMELS IN ALABAMA

Twenty-one of the camels originally imported into Texas, are now on plantations in Alabama, where they give satisfaction. Major Wayne, U.S.A., who was sent abroad to introduce camels into this country, says: "As a southern man, from a cotton, corn, and rice growing section, I believe than in many respects we might use camels with advantage in our agricultural labors about the plantation, and in transporting produce and goods to and from the railway or market."—*Journal of Agriculture of the United States Agricultural Society*, Vol. VII, 1859, p. 185.

A Note on Jethro Tull: Innovator or Crank?

E. R. WICKER

Frequently historians of English agriculture begin a narrative of agricultural progress in the eighteenth century with the publication of Jethro Tull's *The New Horse Hoeing Husbandry* in 1731.[1] But there seems to be less agreement concerning either the specific principles of Tullian husbandry or the validity of those principles. To the most thorough of the early historians of English farming, Lord Ernle, Tull was the 'greatest individual improver' that British agriculture had ever known and whose chief legacies to his successors were "clean farming, economy of seedlings, drilling and the maxim that the more the irons are among the roots the better for the crop."[2] To Professor Ashton, Tull was a crank whose "importance in the history of agriculture has been vastly exaggerated."[3] Miss Naomi Riches, the historian of the Norfolk husbandry, has not only suggested that there should be a clear and distinct separation between Tullian and Norfolk husbandry but also argued that the latter was solely responsible for whatever progress that took place in England in the eighteenth century.[4]

The continued weakening of Tull's reputation in recent years can probably be traced to Professor T. H. Marshall's *Economic History Review* article in 1929. Although Marshall's article provides an appraisal of Tull's contribution to English agricultural science, it does not, I think, do justice to Tull's positive achievement in the art of cultivation. There is ample justification for modifying Lord Ernle's excessive praise of Tull's achievements in the field of agricultural science without at the same time minimizing the importance which Lord Ernle attached to Tull's contribution to English agriculture in the art of cultivation. The present note arises out of the unsatisfactory state of this discussion and attempts to re-appraise Tull's contribution to practical husbandry.[5]

Although I agree with Miss Riches that there are two separate and distinct principles of successful husbandry in the eighteenth century, I disagree with her judgment of the merits of Tullian husbandry. I shall argue that each system, that is, the Tullian and Norfolk, emphasized an essential, if different, aspect of those factors affecting soil fertility: (a) soil renovation through crop rotation and (b) soil renovation through cultivation. Praise has not been wanting for the Norfolk system. On the other hand Tullian husbandry has been subject to waves of appreciation and neglect.[6]

Tillage: a Substitute for Fertilizer? The most glaring weakness in Tull's whole teaching was his hypothesis concerning plant nourishment. Writers before him had laid special emphasis on nitre (saltpetre), air, temperature, water, and earth.[7] Tull rejected all of these. He substituted his own theory which assigned a key role in plant nourishment to infinitely divisible particles of earth. Instead of admitting that air, water, and heat are all necessary

[1] Both Lord Ernle and Professor Mantoux give the impression that Tull was a pioneer in the successful application of the scientific method and spirit to the art of husbandry. See Lord Ernle's *English Farming, Past and Present*, 3d. ed. (London, 1922), 169; and Paul Mantoux's *The Industrial Revolution in the Eighteenth Century* (London, 1929), 162-163. Professor T. H. Marshall challenged this view in his 1929 *Economic History Review* (2: 41) article entitled: "Jethro Tull and the 'New Husbandry' of the Eighteenth Century."

[2] Ernle, *English Farming*, 169, 172.

[3] Thomas S. Ashton, *The Industrial Revolution* (London, 1949), 27.

[4] Naomi Riches, *The Agricultural Revolution in Norfolk* (Chapel Hill, 1937), 5.

[5] Little will be said in this paper about Tull's equally remarkable achievement—that of the reintroduction of the seed drill and horse hoe into Britain.

[6] For an interesting account of the influence of Tull's theories in France, see Andre J. Bourde, *The Influence of England on the French Agronomes 1750-1789* (Cambridge, 1953).

[7] Professor Marshall's *Economic History Review* article contains an excellent summary of the achievements of agricultural science before Tull.

for the development of any plant, he argued that the air hypothesis was preposterous, a 'fantasie.' He was able to dismiss the water hypothesis, for he thought that water *always* carried in it the finely divided particles of earth necessary for plant growth. He was still beguiled, as were his predecessors, by the search for a single principle by which to explain plant growth.

The explanation of plant growth to Tull was extremely simple. Earth was the food of plants insofar as the particles were finely divided. Water, air, and fertilizers were required only to convey or loosen the particles. The consequences of his theory for practical husbandry are three: (1) crop rotation for the purpose of soil renovation is unnecessary; (2) likewise, fertilizers are unnecessary; and (3) fallow is not justifiable. Strictly, it does not follow from Tull's theory of plant nourishment that these practices are harmful. He only maintains that increased tillage and cultivation are substitutes for crop rotation, fertilizers, and fallow except in rather special circumstances. There is a certain simplicity and naturalness with which these far-reaching conclusions of Tull's system are deduced. They follow arbitrarily from Tull's one-sided view of plant nourishment. Pulverization of the soil was the clue to all the mysteries of successful husbandry.

If this is what Professor Ashton had in mind when he referred to Tull as a 'crank,' then we are, perforce, obliged to agree with him. Today no one is likely to deny the importance of cultivation in improving crop yields, but only as one among many factors. We might reasonably ask whether or not Tull was justified in the light of the agricultural practice of his day in elevating cultivation to a position superior to all other soil fertility factors. It is plausible, or so it would appear, to assume that with broadcast sowing, as was the current practice, the amount of weeds must have been disproportionately large by modern standards. Arthur Young complained incessantly about the plentifulness of weeds which he observed on his tours through England and Wales. With the given methods of cultivation, the importance of hand hoers, the type of fertilizer and its price, it is not inconceivable that Tull arrived at the conclusion that for "Prosperous Farm" tillage was a *profitable* substitute for manure. Tull had in mind the ordinary barnyard manure which he thought was important for its soil division properties but to which he objected because he found it harmful as a carrier of weeds, a defect attributable in part to his ignorance of correct procedures for collecting and storing manures.

Tillage: a Substitute for Crop Rotation? Tull as a practitioner of an intensive husbandry is perhaps more widely known for his successive annual crops of wheat on the same land, yield unimpaired for *six* successive years. His best results seem to conform to those recorded in the Rothamsted experiments. Since there is much confusion concerning this aspect of Tull's teaching, we might refer directly to the *Horse-Hoeing Husbandry:*

> The particular scheme of raising constant annual crops of wheat without dung or fallow, is as yet only upon probation, but by the six crops I have had in that manner, I see nothing against their being continued. This, it is true, requires greater care in the management than any other branch of the husbandry; but he who can do this without dung or fallow, may easily do it with one or both of them. And there may be such wet clayey land, which the plough cannot well pulverise without the help of the ferment of dung. . . . Many, it is like [sic], will think, this repetition of wheat crops rather a curiosity than profitable, and in some circumstances it may be so.[8]

Tull was opposed to any theory which suggested the necessity of crop rotation to restore soil fertility, and in this sense crop rotation formed no part of Tull's system of farming. It is surprising that so able a scholar as Mantoux could have been as confused as he was over Tull's system of husbandry. For example, Mantoux[9] wrote:

> He [Tull] recommended deep hoeing and ploughing, and a system of continuous rotation of crops, thanks to which the land could bear, without exhaustion, a succession of varied harvests, and

[8] Jethro Tull, *Horse-Hoeing Husbandry*, edited by William Cobbett (London, 1822), 5.

the wasteful practice of fallows could be suppressed or reduced.[9]

It is true that Tull thought the practice of fallows was wasteful, but instead of recommending crop rotation, he argued that continual cultivation would not impair yields. Mantoux, nevertheless, did appreciate the role of turnips and grasses in Tull's system of farming, for he states: "He [Tull] explained the importance of winter food for the cattle and showed to what account could be turned nutritious roots such as turnips and beets."[10] Miss Riches is correct in arguing that Tull showed "no understanding of their [turnips] significance as a step toward convertible husbandry," for he denied the major link in the causal change: wheat, turnips, cattle, manure, more wheat, etc. He thought tillage was a substitute for manure. However, it must not be inferred that Tull was ignorant of the potential uses of turnips and grasses. He argues that—

> The greatest turnip improvement used by the farmer, is for his cattle in the winter; one acre of turnips will then maintain more than fifty of meadow or pasture ground.
>
> It is now so well known that most cattle will eat them, and how much they breed milk, etc., that I need say nothing about it.[11]

And again he says: "but they [turnips] must always be carried off for cows and oxen; both which will be well fatted by them."[12]

In 1764, a critic had written that in "observing the vineyard culture in France, he [Tull] thought he discovered one general method of cultivating all lands in all countries."[13] The *Horse-Hoeing Husbandry* did not lend itself to the extension of its conclusions to the status of "principles" of good husbandry, independent of soil, climate, and other special influences; particularly since the soil fertility factors—method of cultivation, use of manure, drainage, soil type, temperature, etc.—were likely to vary greatly between different counties in Britain. Tull was concerned solely with the problem of cultivation as a means of increasing yields at minimum cost.

It is perhaps another tribute to the triumph of the common sense of the practical farmer, and Tull was a practical farmer, that enables us, within the same breath, to label him both innovator and crank. Fortunately, Tull's prescriptions which turned out to be of permanent value were generally independent of the reasons he adduced in their behalf; for example, the importance of cultivation and tillage in improving crop yields. Those deduced from his theory of plant nourishment have been in the main wrong; that is, the unimportance of fertilizers and crop rotation to renovate the soil. Professor Marshall has labelled the latter "childish absurdities." Nevertheless, from Professor Marshall's *Economic History Review* article we are in danger of neglecting that special characteristic of Tullian husbandry which constituted a minor revolution in English agriculture in the eighteenth century. Tull deserves much of the credit for emphasizing as well as practicing the new technique of cultivation.

[9] Mantoux, *Industrial Revolution in the Eighteenth Century*, 163.
[10] *Ibid*, 163.
[11] Tull, *Horse-Hoeing Husbandry*, 119.
[12] *Ibid.*, 121.
[13] *Gentleman's Magazine*, 34: 524.

EARLY R. F. D.

Henry M. Stanley, describing an 1867 journey across the American West: "It has frequently been the custom for overloaded stages to dump the mail into some of the creeks that run across the road. In Plum Creek, above Fort Larned, when the expedition passed over it, were found five bags of mail matter and one sack of books, which consisted fortunately of only agricultural reports."—*My Early Travels and Adventures in America and Asia*, 1895. (Vol. I, p. 49)

NOTES AND COMMENTS

Vernon Carstensen, who edited this journal so ably from 1953 through 1956, is spending the current year on a well-earned sabbatical in Sweden, where he will lecture on American frontier history. In the proper Viking spirit, Dr. Carstensen traveled by ocean freighter from Milwaukee; and the cargo, as he reports it, was appropriate to an agricultural historian: "green hides and honey."

❖

A recent publication of the Wisconsin Agricultural Experiment Station is "The Prairie and Its People," by Martha S. Engel and Andrew W. Hopkins (Wisconsin Bulletin No. 520). Printed by offset, with many attractive illustrations, this publication is an excellent example to other experiment stations and agricultural colleges of what can be done to spur interest in local agricultural history. "The Prairie and Its People," is the history of the Empire Prairie of south central Wisconsin, where the University of Wisconsin is building its new agricultural research center.

❖

Another permanent historical exhibit of agricultural interest was unveiled in September at Lakewood Park, Atlanta, Georgia, during the Southeastern Fair. A complete southern mountain town of a century ago has been reconstructed, including a grist mill which grinds corn into meal, a sorghum mill that makes syrup, a blacksmith shop with a working smithy, and a livery stable with horses for hire. The exhibit is called Crackertown, U. S. A., and will be further developed during the next year.

During the past summer, the National Park Service opened an historic pioneer farm site at Humpback Rocks, near Waynesboro, Virginia, at the northern end of the Blue Ridge Parkway. The site was designed to explain the life of the Southern highland farmers. A log cabin chinked with red clay was built in a mountain clearing surrounded by tall hardwood trees. No nails were used in the reconstruction of the cabin and farm buildings. Other out buildings included a spring house for storage of butter and milk, a weasel-proof chicken house chinked with small pieces of wood, a bear-proof pigpen, and a two-storied tool shed dug into a hillside.

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Several members of the Agricultural History Society attended sessions of the Sixteenth Annual Meeting of the Economic History Association held at the University of Illinois, September 7–8, 1956. Papers of special agricultural interest included:

"National Policy and Western Development in North America," by Vernon C. Fowke

"Role of the Mormon Church in the Economic Development of the Mountain West, 1847–1900," by Leonard J. Arrington

"Promoting the American Far West in England," by Oscar Winther

"North Pine Lumbermen," by F. W. Kohlmeyer

"Frontier Merchants in the Early Development of Oregon, 1839–1869," by Arthur L. Throckmorton.

BOOK REVIEW SECTION

The normal complexities which arose when *Agricultural History* moved from Wisconsin to Illinois this past summer have prevented the accumulation of sufficient material to make up a Book Review Section for the January issue of the journal. The editors deemed it preferable to retain the reviews presently on hand for use in the April number.

All correspondence concerning book reviews and all books to be reviewed should be sent to C. Clyde Jones, Associate Editor, 112 David Kinley Hall, University of Illinois, Urbana, Illinois.

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STATE FAIRS AND SIDE SHOWS

John R. Shaffer, Secretary of the Iowa State Agricultural Society, discussing the general management of agricultural fairs in 1880: "Men confined on farms for a whole year, women working in kitchens and going through the humdrum duties of life day after day, those cooped up in office, working busily with brain and pen, those in stores and shops and factories and mines, those everywhere, who struggle and toil for bread and for the maintenance and education of their children—all these workers need amusement, recreation, a respite from drudgery, and the State Fair should afford it. Besides being an important suggestion in political economy, it is one of the demands of our present civilization that the great public, once a year at least, have a rest from labor, and the State should contribute to this recreation.

"This suggests what control the State Fairs should have over the matter of side shows, a sufficiently expressive term. Some have excluded side shows, declaring them nuisances, demoralizing, and all that. But the proprietors of these establishments will follow after a fair, as persistently as the eagles will gather together about the carcass. *Outside* of the grounds they are necessarily troublesome and offensive. *Inside* the grounds they are under the control of the management, and furnish much harmless amusement to thousands of people. They pay well for the privilege and are under authority so completely than any indecent or immoral exhibition can be at once driven away, or any vices practiced under the canvas can be apprehended and abolished. It is always best to have these side shows, swings, shooting gallaries, dancing platforms, etc., inside the grounds that they may be entirely under the supervision of the directory."—Interstate Agricultural Convention *Proceedings*, Springfield, Illinois, 1880.

THE AGRICULTURAL HISTORY DEVELOPMENT FUND

Under the leadership of Dr. H. C. M. Case, the Agricultural History Development Fund was recently established with a Sponsoring Committee composed of the following:

Joseph Ackerman, Director, Farm Foundation, Chicago, Illinois

Rex R. Bailey, President, Doane Agricultural Service, Inc., St. Louis, Missouri

H. C. M. Case, Professor, Agricultural Economics, University of Illinois, Urbana, Illinois

E. L. Heckler, Manager, Public Relations Department, Armour & Company, Chicago, Illinois

R. W. Howard, Roving Editor, American Meat Institute, Chicago, Illinois

Paul Johnson, Editor, Prairie Farmer, Chicago, Illinois

C. E. Most, Jr., Editor and Publisher, Agricultural Leaders Digest, Chicago, Illinois

F. H. McKelvey, Farm Manager-Assistant Trust Officer, First National Bank, Springfield, Illinois

C. W. Weldon, Vice President, First National Bank of Chicago, Illinois

The purpose of the Development Fund is to broaden the membership of the Agricultural History Society and to obtain cash contributions which will be used to expand the size, improve the physical appearance, and at the same time maintain the high scholarly standards set by the journal in the past.

Contributions and new memberships as of October 1, 1956, totalled $817.50. New members brought into the Society through the efforts of the Agricultural History Development Committee are as follows:

Sustaining Members

American Meat Institute
Armour & Company
Atchison, Topeka & Santa Fe
Uhlmann Grain Company

Contributors Plus Membership

W. I. Boone
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Dave O. Thompson, Sr.
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AGRICULTURAL HISTORY SOCIETY

Joint Meetings

with the American Historical Association

Sheraton-Jefferson Hotel, St. Louis, Mo.

December 28-30, 1956

The Agricultural History Society's Joint Session with the American Historical Association

TIME: Sunday, December 30, 1956, at 10:00 a.m.

PLACE: Room 8, Sheraton-Jefferson Hotel, St. Louis, Missouri

CHAIRMAN: Gilbert C. Fite, University of Oklahoma

TOPIC: Agricultural Leadership

SPEAKERS AND SUBJECTS:

Weymouth Jordan, Florida State University
Noah B. Cloud and the American Cotton Planter

Roy Scott, University of Illinois
Milton George and Agricultural Leadership

James H. Shideler, University of California, Davis
A Farm Controversy, Wallace vs. Hoover

THE AGRICULTURAL HISTORY SOCIETY'S LUNCHEON

TIME: Sunday, December 30, 1956, at 12:30 p.m.

PLACE: North Room, Sheraton-Jefferson Hotel, St. Louis, Mo.

CHAIRMAN: Joseph Batchelor, Indiana University

SPEAKER: George L. Anderson, University of Kansas

SUBJECT: From Cattle to Wheat: The Impact of Agricultural History Upon Banking in Early Wichita

TICKETS: $3.40 each. The American Historical Association is also charging a registration fee of $1.50. Tickets available at registration desk, Sheraton-Jefferson Hotel, Mezzanine Floor.

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The Everett Eugene Edwards Awards in Agricultural History

The Agricultural History Society, in partial recognition of the outstanding services of Everett E. Edwards to the organization and in honor of his memory, has established the Everett Eugene Edwards Memorial Awards to be given to the authors of the two best articles (presidential addresses excluded) in *Agricultural History* each year. One prize of $50.00 is offered for the best manuscript submitted by an author who is in the course of taking a degree and one prize of $50.00 for the best published article by an author who is a more advanced scholar.

The Awards are financed from the Edwards Memorial Fund to which all members of the Society and other interested persons are invited to subscribe. However, the amounts necessary to pay the Awards for a period of ten years have been guaranteed by three of Edwards' former co-workers.

All articles to be considered for publication and other communications regarding editorial matters should be addressed to D. A. BROWN, College of Agriculture, 226 Mumford Hall, Urbana, Illinois. *Address inquiries regarding the* MEMORIAL FUND, MEMBERSHIP IN THE SOCIETY, *and business matters to* WAYNE D. RASMUSSEN, *Secretary-Treasurer*, U. S. Agricultural Marketing Service, Washington 25, D. C.